

Original Articles.

SIR ROBERT MACARA.

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IN the *History of the Indian Medical Service* in Chapter XV 'The Double Commissions,' I have enumerated several cases in which men held simultaneously a commission as a combatant officer, and a variant as Assistant-Surgeon, in some cases for many years, before making up their minds as to which line of service, combatant or medical, they would permanently follow. Other cases are quoted in which subalterns were transferred to the Medical Department and Assistant-Surgeons received combatant commissions. All of the cases given however, were officers in the army of the East India Company. The subject of this notice, Robert Macara served the Company for many years as Surgeon of an Indiaman, while actually holding, at the same time a combatant commission in the King's Army, first as an Ensign in the 95th Foot and afterwards as a Captain in the 94th Foot. This extraordinary double duty was rendered possible only by the fact that he was, throughout these years on half pay. Nor can he be counted as a regular member of the I M S, which has always been considered as constituted by the land service only, by the Medical Departments of the armies of the three Presidencies the Bengal, Madras, and Bombay Establishments.

I regret that I did not become acquainted with these facts in time to include them in the *History of the I M S*, in Chapter XXIV 'The Sea Service.' I am indebted to Dr James F D Macara, Medical Officer of *Lairg*, in Sutherland a member of the same family for pointing out to me that Robert Macara, Surgeon of the *Rodney* and of several other Indiamen, was the same man as Lieutenant-Colonel Sir Robert Macara, K C B, who fell at Quatre Bras, in command of the 42nd Foot or Black Watch.

Robert Macara was the only child of the Revd Duncan Macara, parish minister of Fortingall, Glenlyon, Perthshire, a charge which he held for the long period of half a century, till his death there in 1804. The Revd Duncan Macara was a native of Monzie, in Perthshire. His wife, Susanna Robertson, Robert's mother, was a native of Kukmichael in the same county. The exact date of Robert's birth is not known, but he was baptised at Fortingall on 6th May 1759, so was probably born during the first four months of that year.

Of his life as a boy and young man only one fact is now known. He matriculated as a student of the United Colleges of St Leonard and St

Salvator, St Andrews at the age of fourteen, in the session of 1773-74, and went through the four-year course in the Faculty of Arts in that University, but left without taking a degree. On 17th August 1782 he was gazetted Ensign in the 95th Foot. In the following year, 1783, that regiment was disbanded, its officers being placed on half pay. An Ensign's half pay is not a living wage, and Robert Macara had to find some other means of earning a livelihood. He turned his attention to medicine, and on 25th March 1785 sailed from Portsmouth for the East as Surgeon of the Indiaman *Rodney*.

When, where, and how Robert Macara got his medical education is not known. Probably it was by apprenticeship, the usual method of entering the medical profession in those days. He was over twenty-three when he got his commission as Ensign. There was, therefore, ample time for him to have gone through the short and easy medical curriculum of the period, and to have served on one or even on two voyages as Surgeon's mate before he got his commission as Ensign. There is, however, nothing to show that he did serve as Surgeon's mate during these years. The Universities of Edinburgh, Glasgow, St Andrews, King's College Aberdeen, and Marischal College Aberdeen, the Royal College of Physicians of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow have published lists of their graduates and diplomates, which cover these years. The name of Robert Macara does not appear in any of these lists.

Macara made six voyages to the East as Surgeon of various Indiamen. The logs of these voyages are all preserved among the *Marine Records* in the India Office. These logs are dull and lengthy documents running to over one hundred folio pages each. Some are more, some less full, all are filled chiefly with details of wind, weather, course made, work done, and the usual routine of duty on a sailing ship. Macara's name is not mentioned in any of them, except in the lists of ship's companies. The life of the Surgeon of an Indiaman must have been monotonous. Probably the work was light, though, as the Indiaman often carried detachments of troops to India, and of invalids on the return voyage, the Surgeon had a certain amount of professional work, especially on the voyage home. A good many deaths on board are recorded in these logs.

Macara's first voyage was as Surgeon of the *Rodney*, Captain Henry Wakeman. The log begins at Blackwall on 13th December, 1784. She went down to Gravesend on 27th January 1785 and went on to Portsmouth on 1st March, sailing from that port on 25th March. On 1st May is recorded the death of Mr Blower Surgeon's mate. For the rest

of the voyage out and home the *Rodney* was without a Surgeon's mate, which must have greatly increased Macara's work. She sighted the Sandheads on 2nd August, and landed her despatches on 9th August at Diamond Harbour, where she lay for over five months. On 13th January, 1786, the homeward passengers came on board, among them General Giles Stibbert, late Commander-in-Chief in Bengal, who was received with the usual honours, salutes, &c. The next day the *Rodney* sailed for home. She lay at St Helena from 17th to 25th March, and anchored in the Downs on 20th May.

After six months at home, Macara made his second voyage as Surgeon of the *Thetis*, Captain Justman Nutt. The log begins at Blackwall on 22nd October, 1786. She sailed from the Downs on 6th January, 1787. On 8th March the sixth officer, Mr Hodges, fell overboard and was drowned. On 11th April two soldiers fell overboard, one was rescued and the other drowned. On 26th May she anchored in Channel Creek in the Hughli. She remained there eight months, sailing for home on 22nd January, 1788. On 15th March she sighted a ship under French colours, and cleared for action, but no fighting took place. She reached St Helena on 1st April, and lay there for ten days. Macara seems to have had no luck with his Surgeon's mate, Mr Hamilton, who held that post on the *Thetis*, and was left sick at St Helena. She reached Plymouth on the 23rd and the Downs on the 25th June.

After a year and a half at home Macara joined the *Ceres*, Captain George Stevens. The log begins at Blackwall on 1st January, 1790. She went down to Gravesend on 11th January, to the Downs on 19th February, left the Downs on the 22nd, and lay in Torbay from 25th February to 2nd March. On 23rd June she anchored at Madras, where she stayed for nearly two months, varied by a trip to Negapatam and back. It took her nine days, 20th to 29th July, to beat up from Madras to Negapatam. She came back before the monsoon in one day, 1st August. On 13th August she left Madras for China, passed Malacca on 30th August, reached Macao on the 1st, and Whampoa near Canton on 4th October. There she remained nearly six months, sailing for England on 29th March, 1791, as one of a large convoy. From 29th April to 3rd May she lay at Bantam, in Java, sighted the Cape on 16th June, stopped at St Helena from 4th to 10th July, sighted the Scilly Isles on 28th August, and reached London on 1st September.

After a few months at home, Macara made his fourth voyage on the *Valentine*, Captain Ivel Macmillan. The log begins at Gravesend on 22nd January, 1792. She went on to the Downs on 5th March, and sailed on the 8th, lay at St Helena from 11th to 27th May, and anchored off the Hughli on 2nd August. On 17th September

she sailed for Ganjam, and reached that port on the 21st. On 2nd October a storm came on, the *Valentine* had to cut and run, getting back to Ganjam on the 4th. On 24th October she left Ganjam, and anchored at Diamond Harbour on 1st November. On 1st January 1793, she sailed from the Hughli, reached Madras on the 12th, left on the 31st, and arrived at Bencoolen, in Sumatra, on 20th February. Sailing on 14th March, she sighted the Cape on 30th April, lay at St Helena from 11th to 20th May, and reached the Downs on 21st August.

His fifth voyage was in the *King George*, Captain Richard Colnett. The log begins at Blackwall on 31st January, 1794. On 12th February she dropped down to Gravesend, and on 30th March to the Downs, and on 9th—10th April went on to Portsmouth. On 2nd May she sailed as one of a convoy under H M S *Daphne*. On 27th July she sighted the Cape and on 18th August the remote and desolate island of St Paul. On 11th September she sighted Sumatra, and reached Macao on the 1st, Whampoa on the 6th October. On 24th January, 1795, she sailed from China, under convoy. From 14th April to 16th May she lay at St Helena. She was cleared for action three times, on sighting strange sail, between St Helena and England, on 19th and 22nd June, and on 17th July, but all were false alarms. On 23rd July she anchored in the Downs.

We now return to Macara's service in the Army. He had received a commission as Ensign in the 95th Foot, as stated above, on 17th August, 1782, and had been placed on half pay in the following year. Almost all the regiments with numbers above the 70th were reduced in 1783. After over twelve years on half pay, he was promoted to Captain in the 94th Foot on 16th December, 1795. The *Army Lists* of 1796, 1797, and 1798 shew his name, as Captain in the 94th Foot, in a list of officers of reduced regiments receiving *full* pay, but apparently doing no duty. The reason of this promotion is not easy to understand, for the 94th Foot was not embodied in these years. Possibly the statement that he was on *full* pay is a mistake, for the *Army Lists* of 1799 to 1803 shew him as Captain, 94th Foot, on half pay, from 1795.

Macara remained on half pay till 1803, and during this time made his sixth and last voyage to the East, as Surgeon of the *Marquess Wellesley*. Her log begins at Deptford on 7th December, 1801. On 5th February, 1802, she went down to the Nore, left the Downs on 11th February, and lay at Portsmouth from 13th February to 6th March. She reached Madras on 24th June, lay there for four days, and anchored in the Hughli on 3rd July. Sailing on 20th September, she reached Madras on 8th October, left on 19th October, remained at Penang from 1st November

to 8th December, and reached Vizagapatam on Christmas day. Leaving that port on 31d January, 1803, she lay at Madras from 16th to 23d January, sighted the Cape on 23d April and anchored at St Helena from 13th to 19th May. On 24th May an invalid soldier fell overboard, but was picked up. Twice, on 19th and 25th July, she cleared for action on sighting strange sail, in both cases the other ships turned out to be British men-of-war. On 31st July she reached the Downs, and Macara's service afloat came to an end.

The Surgeon's pay during the first five voyages was £3 per month, in the sixth £3-5-0. That of the Surgeon's mate was £1-10-0 in the first three, £2 in the fourth and fifth, £2-10-0 in the sixth. The Surgeon was allowed a personal servant, who got fifteen shillings a month. All the ship's company, of course, were fed by the ship. The medical as well as the executive officers had also the privilege of free freight each way for a certain amount of private trade.

On 9th July, 1803, three weeks before he reached England, Macara was gazetted Captain in the 42nd Foot, the Royal Highlanders, or Black Watch, and joined on his arrival. His serious military career then began, at the age of forty-four, after over twenty-one years' nominal service in the army. His army rank as Captain dated from 16th December, 1795. The *Army List* of 1804 shows him as 15th out of 18 Captains in his regiment, that of 1805 as seventh. On 14th November, 1805, he was promoted to Major. There were four Majors in the regiment. In 1809 he had risen to third, in 1810 to second, and in 1811 became Senior Major. He was promoted to Lieutenant-Colonel in the Army on 1st January, 1812, and got that rank in his regiment from 16th April, 1812. There were then two Lieutenant-Colonels. In 1813 he became the senior, and attained to the command of the regiment.

The Order of the Bath was reorganised by the statute of 2nd January, 1815. Previously there had been only one grade in the order, Knight of the Bath, K. B. In 1815 three grades were instituted, all the previous Knights became Grand Commanders, G. C. B., and a large number of Knight Commanders, K. C. B., and Companions, C. B., were gazetted from 2nd January, 1815, among whom Macara got the K. C. B.

Much of Macara's service in the Black Watch was spent in hard campaigning in the Peninsula. The first battalion of that regiment went out to Gibraltar in September, 1805, and on 14th August, 1808, embarked at Gibraltar for Portugal. It served under Sir John Moore in the retreat to Corunna and in the battle there on 16th January 1809. In February, 1809, it returned to England, and in August-September, 1809, served at Walcheren. The second battalion landed at Lisbon on 4th July, 1809 and took part in the battle

of Busaco on 27th September, 1810, the defence of the lines of Torres Vedras in the winter of 1810-11, at Fuentes d'Onor on 3rd May, 1811, and in the siege of Ciudad Rodrigo and storm of that fortress on 19th January, 1812. The first battalion returned from England to the Peninsula in 1812, landing at Lisbon on 20th April. The two battalions were then combined, and served at Salamanca on 23d July, 1812, Burgos, 19th September, 1812, Vittoria, 21st June, 1813, battle of the Pyrenees, 25th July, 1813, capture of San Sebastian, September, 1813, passage of the Bidassoa, 7th October, 1813, capture of Pampeluna, 31st October, 1813, battles of Nivelle, 10th November, 1813, Nives, 9th December, 1813, Orthez, 27th February, 1814, and Toulouse, 10th April, 1814. In how many of these actions Macara took part cannot be stated with certainty. He received a medal for the battle of the Pyrenees, and clasps for Nivelle, Nives, Orthez, and Toulouse, also the Peninsular Gold Cross, having commanded the regiment in the last four. Shortly before the battle of Nivelle Colonel Stirling, his predecessor in the command, went home, and was promoted to Major-General.

On 21st June, 1814, the Black Watch embarked for Ireland, but were at home less than a year. In March, 1815, Napoleon returned from Elba, and re-established himself in Paris. Among the troops sent over to the Netherlands to oppose him was the 42nd, which landed at Ostend in the middle of May, 1815. The first general engagement took place at Quatre Bras on 16th June, 1815, and there Sir Robert Macara fell, commanding one of the finest regiments in the British Army, in the greatest campaign in which that army had ever been engaged previous to 1914.

While forming his regiment into square to repel a charge of French Cavalry, Macara was wounded by a musket-ball, and fell from his horse, and while lying on the ground was pierced by a lance driven home under the chin. The command of the regiment passed through four hands within a few minutes, Lieutenant-Colonel Macara killed, Lieutenant-Colonel Dick severely wounded, Brevet-Major Davidson mortally wounded, and Brevet-Major Campbell.

In the Waterloo campaign the 42nd lost four officers, two sergeants, and 45 rank and file killed, 19 officers, 12 sergeants, and 216 men wounded. Nearly all of these casualties occurred at Quatre Bras. At Waterloo itself they lost only six men killed, four officers and 33 rank and file wounded.

The medical officers of the Black Watch at Quatre Bras and Waterloo were Surgeon Swinton Macleod, Assistant-Surgeons Donald Macpherson and James Stewart. Macleod became Surgeon of the regiment on 9th July, 1803, went on half pay in 1829, and died in London on

27th December 1847 Macpherson's commission was dated 1st June 1809, he was placed on half pay in 1835, and died at Chatham in 1839 Stewart joined the army on 4th May, 1809, and was posted to the 42nd on 20th July 1809 He went on half pay in 1818, and died at Perth on 2nd January, 1837

Macara was an only child, and never married, so left neither descendants nor near relatives No portrait of him appears to be in existence A joint monument to him and to Colonel Cameron of the Gordons, who also fell at Quatre Bras stands on the hill of Tor-Alvie, north of Kingussie, in Inverness-shire

EMETINE IN CHOLERA

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THE remarkable effects of emetine in amoebic dysentery and its occasional value in spue-like forms of diarrhoea, together with its favourable action in hæmoptysis and hæmorrhages from the gastro-intestinal tract, led me to consider if it might not conceivably be of value in checking the rapid loss of fluid through the mucous membrane of the small bowel in cholera

With a view to testing this hypothesis I commenced in March, 1914, to give hypodermic injections of emetine hydrochloride in half grain doses morning and evening, in addition to the routine treatment by hypertonic salines intravenously and permanganates by the mouth The mortality of cholera in Calcutta varies in different seasons of the year and even from one month to another, and to a still greater extent in different periods of an epidemic, being much less in the latter than in the earlier portion of an outbreak The necessary precaution was therefore taken of using the new additional treatment as far as possible in alternate cases, so as to have an equal number of controls during the period of the trial of the drug The time chosen was at the height of the annual maximum of the disease in Lower Bengal, namely, March and April, when the cases are severe although somewhat milder in April than in March

After thirty-two cases had actually received emetine injections the treatment was stopped as no obvious benefit had resulted from it

Some two months after the conclusion of my trial of emetine a paper appeared in the July issue of the *Indian Medical Gazette* by Dr Renault, in which he claimed to have obtained very favourable results from the use of injections of the drug in doses varying between one-sixth and 0.6 grains of emetine hydrochloride, but without the use of the saline treatment Unfortunately he omitted to take the precaution of having control cases, while he began the treatment when the epidemic

had reached its height, that is just when a decline in the virulence would naturally take place Still more unfortunately the cases treated with emetine do not appear to have been an unselected series, as the author states that some of his assistants exhibited the drug in desperate cases, contrary to his clearly expressed directions on the subject, thus implying that the severest cases were excluded from the treatment by him This entirely vitiates his results, as it is among these alone that any high mortality is to be expected if my system of treatment is carried out It, therefore, appears to be advisable to place my experience on record, especially as full notes, on the system used in my wards for the last five years, are available, so that the cases treated with emetine can be accurately compared with an equal number of control cases not receiving the drug during the same period of time

For convenience of comparison the principle points which influence the prognosis in cholera cases have been analysed, and the results are shown in the table below In the first place the mortality of the whole series of 64 cases was 8, or only 12.5 per cent, a very low figure, especially when it is remembered that desperate cases are included, and about one-half of that obtained by Dr Renault If control cases had not been kept the results would, indeed, have appeared to be very favourable to the drug, but as a matter of fact the mortality was equally divided among the cases treated with and without emetine, thus showing no improvement due to the addition of that drug

In such a comparatively small series, however, the precise mortality might well be affected by an accidental occurrence of a larger proportion of serious cases in one or other of the series The factors which most influence the mortality, as shown by a close study of upwards of one thousand cases in my wards, are (1) the number of cases admitted with no pulse at the wrist, (2) the number admitted with a specific gravity of the blood of from 1.066 and upwards, (3) the number of cases requiring more than one intravenous saline injection, and (4) the number of patients over the age of 50 years, among whom the mortality is twice as high as among those of the most favourable decade between 21 and 30

TABLE I—THE PRINCIPLE FACTORS INFLUENCING THE MORTALITY OF CHOLERA

| | Emetine Cases | No Emetine |
|---|---------------|------------|
| Cases with no pulse on admission | 10 | 15 |
| Cases with Sp Gr over 1.065 | 8 | 3 |
| Cases requiring two or more intravenous saline injections | 10 | 10 |
| Patients over the age of 50 years | 1 | 1 |
| Deaths among 32 cases | 4 | 4 |

It will be seen from the table that as regards mortality, the number of patients over 50 years

of age and the number of cases requiring more than one intravenous saline injection the figures are identical in the two series of cases. Of the other two factors five more cases with no pulse at the wrist on admission occurred in the series treated without emetine, and five more with very high specific gravities of the blood in those receiving emetine, which thus cancel each other. This leaves the two series remarkably similar as regards the prognosis on admission, thus entirely confirming the opinion I had formed from watching the progress of the patients.

I am therefore obliged to conclude that the injections of emetine have no influence for good or evil on the course of the disease when the hypertonic saline treatment is also employed.

ON A FIVE FLAGELLATE TRICHOMONAS (N Sp) PARASITIC IN MAN *

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FLAGELLATES inhabiting the intestinal tract are, as is well-known, very common in the tropics. They have been made the subject of study in the Philippine Islands by Stilt and others and in Ceylon by Castellani and Chalmers. The Indian representatives have not, so far as one could judge from published literature, received much attention, except for the solitary instance by D. D. Cunningham who worked before the discovery of modern fixing and staining methods. This is probably due to the supposition that the Indian intestinal flagellates are the same as those found elsewhere. But as by studying by recent staining methods, I found this supposition to be incorrect, more than one variety being found, altogether new to science, I thought it advisable at present to describe the one which I studied a little more in detail.

The flagellate in question has got five anterior flagella, one posterior "land" flagellum, one undulating membrane—characters possessed by none of the intestinal flagellates hitherto described. It was found by me in stools of six cases of chronic dysentery. The patients showed no peculiarity, except in one marked anaemia of secondary type was found. The stools were achylous, and frothy containing some mucus. In three of them amoeba showing nucleus of the histolytica type were found. In two, besides amoeba and the flagellates numerous *Lamblia* intestinales were found.

DESCRIPTION OF LIVING SPECIMENS

These are very actively motile, moving by quick jerky movement through the fluid portions. When gliding through solid faecal matters, the

movement partakes of amoebic character. In changing then direction while moving through semi-solid portions of the field they often double themselves, the front end being parallel to the posterior end. The *Lamblia* which were found in the same fluid showed no such peculiarity. They are bigger in size and are much more active. The body of the former is pear shaped, one side being a little more convex than the other. In the convex side is seen, when the movement of the organism is slowed down a little, the wavy border of the undulating membrane, the undulations starting near the anterior end, going through a series of short curves and then ending in the tail end. In the anterior end, in slowly moving organisms, a slight depression can be made out from which a bunch of whiskers can be seen projecting out which move spasmodically forward and backwards like the oars of a boat. The posterior end terminates in a stumpy tail which shows only a side to side movement, when the organism is moving actively.

DESCRIPTION OF STAINED SPECIMENS

The specimens were fixed in Schaudin's fluid then stained by Heidenham's Iron-haematoxylin method. A few specimens were made by adding a drop of 10 p.c. alcoholic solution of Iodine to a drop of faeces placed on a slide and then quickly smearing it on the slide and then staining by Giemsa stain. This method I found gave very good results, the nucleus, the basal granules, the flagella, and the undulating membrane being clearly differentiated.

The following structures were seen in stained specimens—nucleus is very big, rounded in shape, a nuclear membrane is clearly seen. Karyosome is present in the form of small clumps distributed irregularly through the substance of the nucleus. In many specimens nucleus is homogenous—no karyosome can be made out. The nucleus is situated in the extreme anterior end just behind the basal granules.

The flagella are six in number, five being free and directed forwards. The sixth one is a "land" flagellum forming the border of the undulating membrane, through the length of the body—and then becomes free, projecting out near the tail. Of the five free flagella, four are equal in length and are often found together, being directed forwards. The fifth one is slightly smaller in size and is often separate, being directed to one side. In many specimens however, five are found together.

The body of the parasite is pear shaped, in most specimens one side is a little more convex than the other. The anterior end is pointed, and just to one side of this pointed end is a small depression around which are seen originating the anteriorly directed flagella (Fig. 1) this depression is a cystotome—no regular cyto-

* Received for publication 29th August 1914.—ED

pharynx has been clearly made out. Just near the depression are brightly stained granules (basal granules). From the basal granules are seen starting a fine chromatic line passing transversely to the opposite edge surrounding the cystotome. The "land" flagellum is seen originating from near the origin of the other flagella (the basal granule and the chromatic line), passes obliquely to the edge and then along the edge to a certain distance in a series of curves, and then becomes free near the tail end. In most specimens the undulating membrane is clearly seen as a thinly stained wavy border, from near the anterior end down to the tail. In Giemsa stained specimens the membrane is hidden by the darkly stained body of the organism. In well fixed specimens stained by Giemsa, a well marked axostyle can be seen arising from the posterior part of the nucleus ending near the tail. In several a full size red corpuscle was found inside the body, no vacuole is seen. In some portions of the field rounded forms were found. These show a large oval nucleus at one side, basal granule, an indentation in the edge near the basal granule (cystotome), and a bunch of flagella (often five in numbers) originating from the basal granule. Undulating membrane and the tail are not seen.

Besides, dividing forms were seen but only rarely (Figs 9 & 11) no encysted forms were seen.

MEASUREMENTS OF THE ORGANISM

The body of the organism measures 8 to 10 μ in length, 5 to 6 μ in breadth, the 4th anterior flagella 8 to 10 μ , the short 5th anterior flagellum 6 to 8 μ . The projecting portion of the 6th "land" flagellum is 3 to 4 μ . The nucleus is 3 μ in diameter.

SYSTEMATIC

It evidently belongs to the family Tetramitidae. In habits and characters it resembles in every respect a *Trichomonas*. The possession of five free flagella is the only hindrance to its being included in the Genus *Trichomonas*—*Trichomonas* having been defined by Doflien and Parisi and others as an organism possessing three to four flagella. Recently finding of an organism by Alexeieff possessing four anterior flagella and one posterior "land" flagellum has caused Parisi, who found a similar or identical parasite, to sub-divide the Genus *Trichomonas* into three sub-genera—

(1) *Trichomonas sensu stricta*—with three anterior flagella and one "land" flagellum and an undulating membrane.

(2) *Trichomastix*—with three anterior flagella and one free posterior flagellum which act as a "Schleppgeissel".

(3) *Tetia-trichomonas*—with 4 anterior flagella, one posterior "land" flagellum bordering the undulating membrane. Mackinon has added to these another sub-genus termed *Tetia-tricho-*

mastix in order to include the organism found by her. The characters of this sub-genus are as follows—four anterior flagella, one free posterior flagellum acting as a "Schleppgeissel".

Following the precedence of Parisi and Mackinon, the organism under consideration should be classed under a fifth sub-genus under genus *Trichomonas*, which may be provisionally named *Pentatrachomonas*. For this purpose the definition of genus *Trichomonas* has to be changed to one possessing three to five anterior flagella instead of one possessing three to four flagella. The locality in which this parasite has been found will give its specific name, as *Pentatrachomonas Bengalensis*. The classification will be as follows—

Class-Mastigophora-Diesing

Sub-class-Flagellata-Cohn and Butschli

Order-Polymastigina-Butschli

Family-Tetramitidae-Butschli

Genus-*Trichomonas*-Donne

Sub-genus-*Pentatrachomonas* (N. Sp.)

In conclusion I like to mention that flagellates and ciliates are fairly commonly found in the intestinal contents in this country. True *Trichomonas intestinalis* (three anterior flagellata) have not as yet been met here. I have found recently in three cases a *Macrostoma*†. Whether this pentatrachomonas represents *Trichomonas* of other countries or only accidentally found in particular type of cases remains to be seen. I do not like to discuss the pathogenic property of the new organisms—whether these are in common with ordinary *Trichomonas* simply Saprophytes or like *Difemus*—an intestinal flagellata found by Gabel—is pathogenic, remains to be seen by further observations. Prowazek and Werner have described a *Lambia* and *Chilomastix* causing enteritis.

DESCRIPTIONS OF PLATES

The specimen was prepared by making a smear of stool, fixing in Schaudin's fluid while wet and then staining in Leishman's stain and mounting in Hoyer's fluid. At no stage of the process the preparation was allowed to dry.

Drawn under Camera Lucida, 3 mm apochromatic lens and 18 eyepiece and tube drawn to 16 mm.

Fig No 6 shows a parasite in the process of plasmolysis. Here the parts are very clearly seen. 1, 2, 3, 4, 5 are five free flagella, *a*—the flagellum bordering the undulating membrane, *b*—boundary line of the body of the parasite, *c*—is basal granule, *d*—axostyles originating from nucleus.

* This distinction between *Trichomonas* and *Trichomastix*—the former having an attached posterior flagellum and the latter a free one—though accepted by most protozoologists has been reversed by Martin and Robertson who figure their *Trichomonas gallinarum* as having four free flagella, whereas *Trichomastix gullinarum* as having three anterior flagella and one posterior flagellum attached to undulating membrane.
† This *Macrostoma* differs from the one described by Wenyon as *Macrostoma Mesuli* in many points. I intend to publish notes on this later on.

ON A FIVE FLAGELLATE TRICHOMONAS (N Sp) PARASITIC IN MAN.

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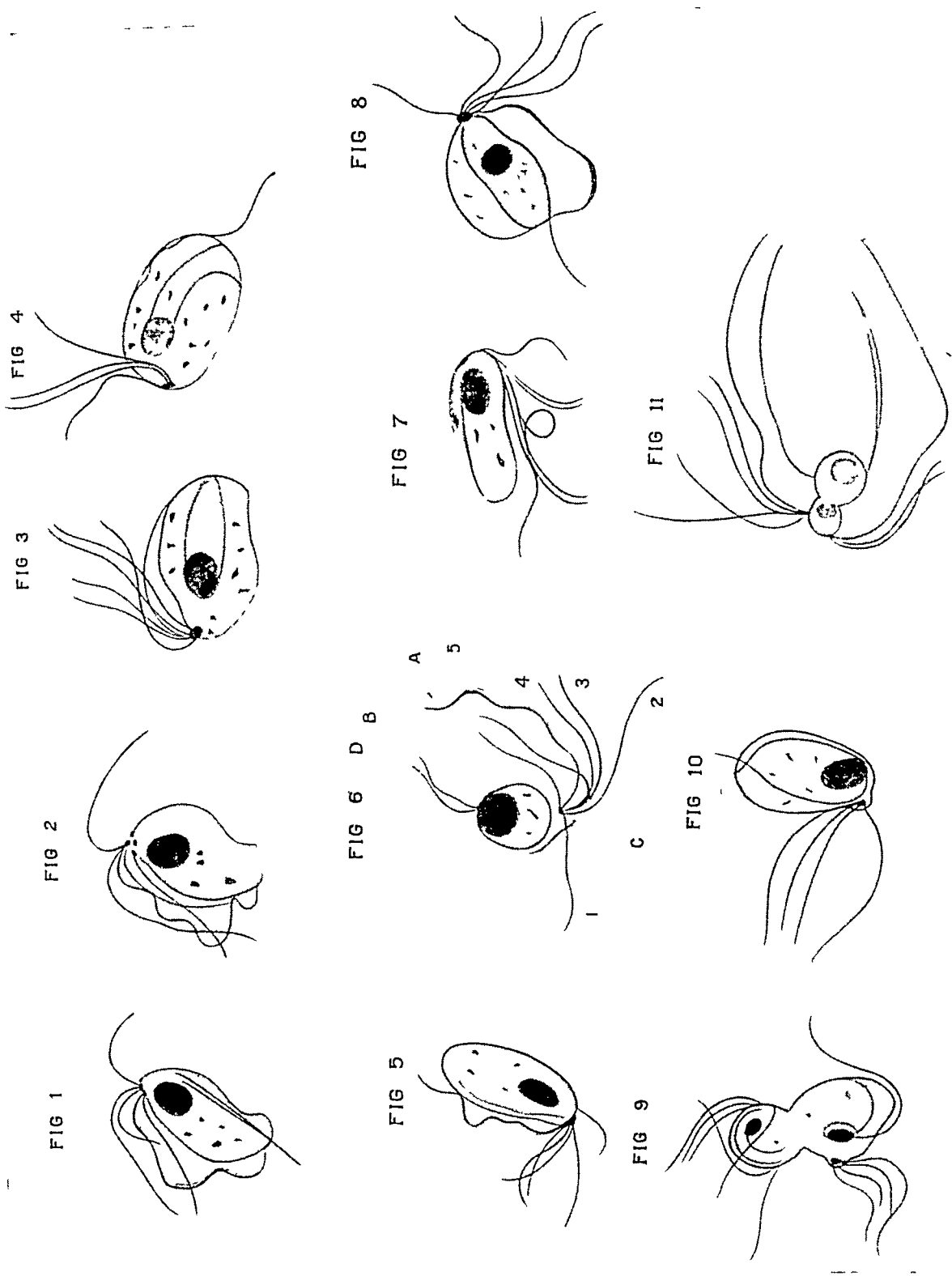


Fig 1. Shows an organism in which the undulating membrane is clearly seen. There are seen four out of five free flagella. Axostyle is clearly seen.

Fig 2. Also shows four free flagella. No axostyle is seen.

Fig 3. Shows five free flagella, and a "band" flagellum. The undulating membrane is not clearly seen. Two axostyles are seen.

Fig 4. Same as fig 3.

Fig 5. Shows five free flagella, one "band" flagellum, one axostyle.

Fig 7. Five free flagella. The flagellum bordering the undulating membrane seems to be free.

Fig 8. Five free flagella are seen. The undulating membrane with its attached flagellum is seen at the lower part of the organism. The clear portion bounded by a line at the upper portion seems to be due to plasmatosis of the organism.

Fig 10. A dividing form—the two nuclei, two groups of basal granules and axostyles and flagella are seen.

Fig 11. Seems to be a dividing form with two nuclei and six free flagella.

POSTSCRIPTUM (Dic 1914)

At the time of correction of the proofs, I came across a review in the October number of the *Tropical Diseases Bulletin* of a paper by Demien and Raynaud under the title of *Dysenterie chronique à Flagellé Novaei* in the July number of *Bulletin Society Pathologie Indica*. In this it appears the authors have found a new intestinal flagellate which they describe under the name of *Hexamastix Andru-Delteil*. They found this parasite in a patient suffering from diarrhoea in the medical clinic of Mustafa in Algeria. The parasite is characterized by the following characters—measurement 10 to 15 μ long, 9 to 13 μ broad. Nucleus and Blepharoplast are present. Close to the Blepharoplast arose an undulating membrane, terminating in a flagella as well as five flagella varying in length 10 to 17 μ . There was also an axostyle. This parasite is allied to *Trichomonas intestinalis*, but is distinguished by the presence of five flagella.

From the above description it seems that this parasite resembles in many essential points the one described by me in my paper, but the absence of the original paper which has not as yet arrived in Calcutta, it is very difficult for me to make out whether this parasite is the same as found by me or differs from it in minor points.

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STUDIES IN MALARIA *

By H. STOTT, M. B.,

CAPTAIN, I. M. S.,

Surgeon to His Excellency the Governor of Madras

PART II

Continued from p 471 December I. M. G.

AN EXPERIMENT IN THE VALUE OF QUININE PROPHYLAXIS.

THE present enquiry deals with the results of a supervised issue of prophylactic quinine in the prevention of malaria. It is obvious that these results do not carry the weight of a scientific experiment accurately conceived and executed, yet they were none the less the honest results of a set trial to determine the approximate value of prophylactic quinine, in so far as such trial lies within the hands of a regimental medical officer and his subordinates.

REASONS WHICH PROMPTED THE TRIAL.

For three years (1908-1910) the 91st Punjabis had been practically free from malaria, and during the first five months of 1911 their monthly admission rate averaged under 5 per 1,000 strength. During June and July, however, the figures reached 70 and 250, respectively. On 22nd June, subsequent to the onset of the epidemic, prophylactic quinine was commenced in ten grain doses twice weekly to the entire regiment. This, however, appeared to exert no appreciable effect on the admission rate. (Indeed from the above figures it will be seen this had risen three and a half fold during the ensuing month.) The dose was therefore increased to fifteen grains thrice weekly from 25th July. In August the rate had fallen to 60.3 per 1,000, but during the following month it again rose to 72.2 per mille, whilst the figure for the remaining units in the station during the same period fell from 44.0 to 22.6.

I therefore felt that even if there was some factor to partly explain this phenomenon, as indeed there was (the 92nd Punjabis were using

* Being an enquiry into the results of twelve months supervised issue of prophylactic quinine to one half of a regiment, the remaining half serving as a control.

mosquito nets, the 91st were not), yet that such a use could take place in the face of so much carefully administered prophylactic quinine was directly opposed to my preconceived ideas on the subject. I therefore decided to try the administration of the drug to the odd halves of each double company only (that is, to Companies A, C, E, G), and to use the even halves (Cos B, D, F, H), who would receive no prophylactic quinine at all during the whole period of the trial as a means of control. Thus after twelve consecutive months a close comparison of the results obtained should afford some indication of the value of the prophylactic issue to the regiment.

COMPARABILITY OF THE EXPERIMENTAL GROUP AND ITS CONTROL

Both the experimental group and its control were as comparable as is practically possible in any collection of living individuals. Each consisted solely of healthy adult Indian males in the prime of life, whilst the ratio of malarial admissions from each group for the 9 months (January to September) previous to the experiment worked out in either case to the same nearest whole number (5%). The plan adopted of placing one-half of each double company in the experimental and one-half in the control group insured that the different castes of men were equally divided. Moreover since each double company was sometimes exposed as a separate unit to different influences of climate and work than those affecting the rest of the regiment, such a division equalized the factor of strain and stress amongst the two groups.

DETAILS OF THE TRIAL

Before presenting the actual results obtained in this trial certain bare details with regard to the administration of the experiment must be recorded.

(1)—Dose—Salt of Quinine and periods of administration

The dose chosen was a decisive one. From 1-10-11 to 15-2-12 fifteen grains were given thrice weekly. From 20-4-12 onwards to 30-9-12 it was reduced to ten grains thrice weekly. During the two intermediate months, which form part of the non-malarial season in Burma, no prophylactic quinine was issued. During these two months the regiment for the most part was up in the hills on manoeuvres and not exposed to fresh malarial infection. The sulphate of quinine (unadulterated government issue) was given in acid solution every Sunday, Tuesday, and Thursday, these days being those most convenient for the regiment.

(11)—Method of Administration

A prophylactic register was maintained with the name of every man in the different companies

inscribed. The parades took place at hospital under the native company officers. The dose was poured into each sepoy's mouth by the senior sub-assistant surgeon. The sepoy repeated his name and number and the junior sub-assistant surgeon marked the man's name in the register as having satisfactorily swallowed his potion. Any absentee on other duty comes later in the day, or, if he did not, was reported to the officer commanding. Any sepoy failing to satisfactorily swallow his dose was given a second. Only once was it necessary to report a man for wilful rejection of his quinine.

A possible fallacy exists in the fact that I was unable myself to personally superintend more than 10 % of the quinine parades, but this could not affect the general results unless there was a widespread conspiracy to defeat the objects of the trial which is highly improbable. Both the sub-assistant-surgeons were trustworthy men.

(111)—Other Details

At intervals I tested the stock quinine mixture with the hydrometer to insure so far as possible that the prescribed strength of salt in solution was correctly maintained*. Every case reporting with 'fever' was at once admitted to hospital, no case was ever treated as 'attending'. Each patient on admission was treated so far as possible on a uniform routine plan. This consisted of a preliminary purge, and, subsequent to the diagnosis, of three ten-grain fluid doses daily during the fever which was continued for ten days after the temperature had become normal. After this the patient's name was placed on a curative register and he attended hospital regularly for four doses weekly for four months. The actual figure details were not worked out until nine months after the commencement of the trial so that sub-conscious bias could so far as possible be avoided.

Thus every reasonable precaution was taken to ensure that every man actually and regularly swallowed his correct amount of quinine, and also that, after admission, no difference was made in the actual treatment of cases from the two groups.

CRITERIA BY WHICH TO JUDGE THE RESULTS OBTAINED

The results of the administration of the quinine was judged both in the experimental group and its control by the two following criteria—

- I The fever admission rate
- II The degree of severity of attack

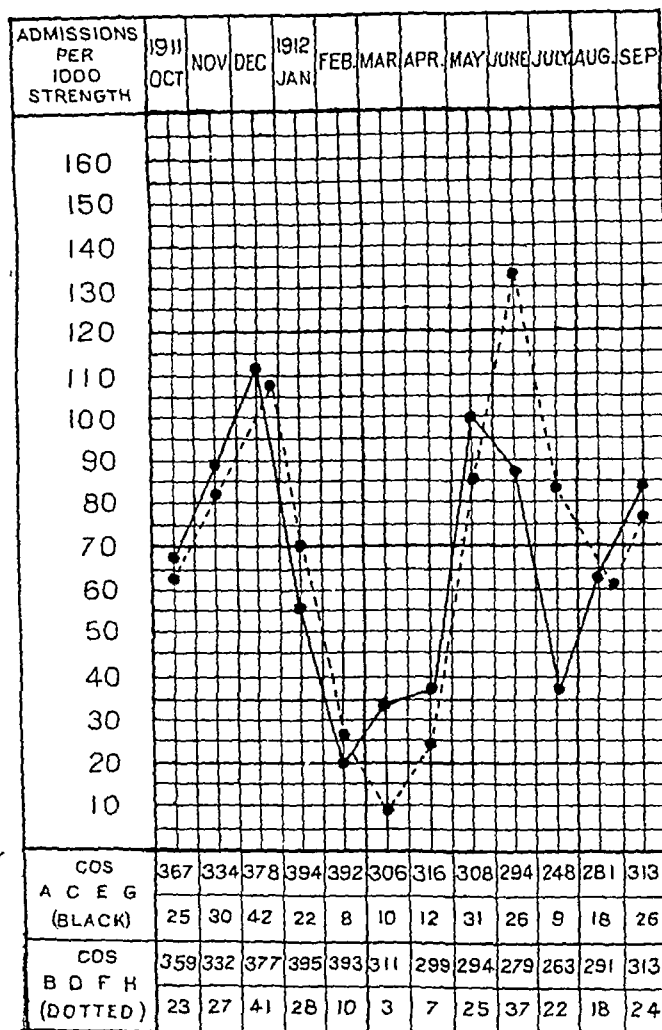
The first of these criteria needs no comment. The second requires definition. The degree of severity of attack was estimated

* The specific gravity of a 5 grains to the ounce acid solution of quinine sulphate is 1003 of 10 grains to the ounce 1007, and of 15 grains 1011.

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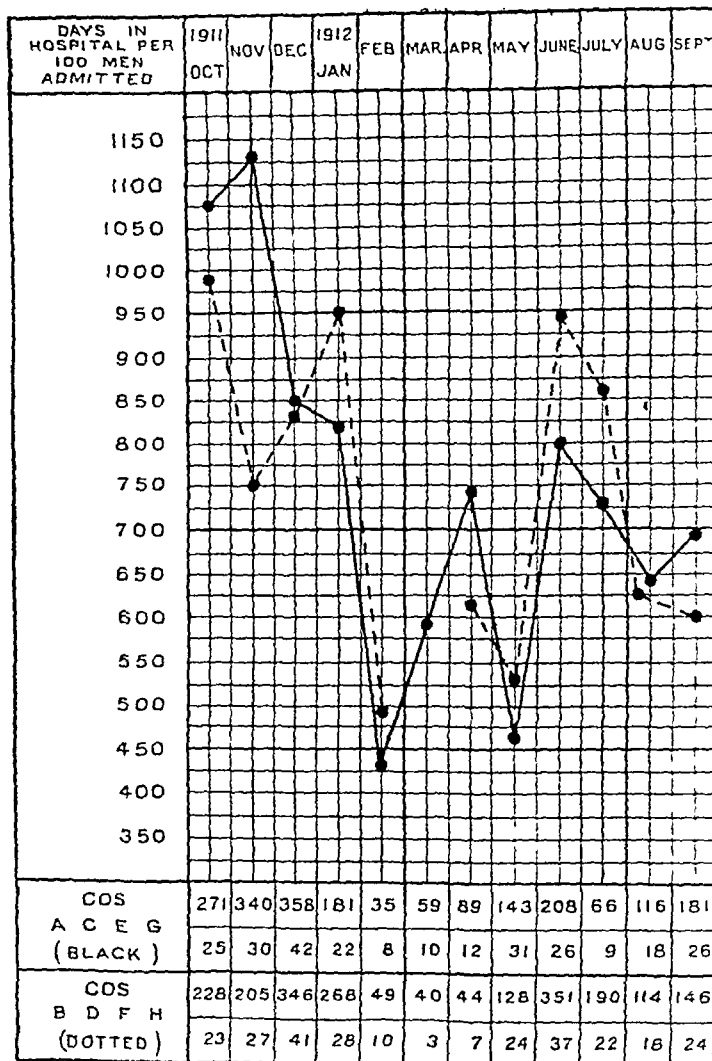
CHART I



Plotting the monthly malarial admission rates per 1,000 strength from the experimental quininized (black) and control non-quininized (dotted) groups of companies for the year under investigation

The actual figures from which the curve is plotted are tabulated below it. Those in each upper line give the actual monthly strengths of the groups of companies with their actual admissions immediately beneath them

CHART II



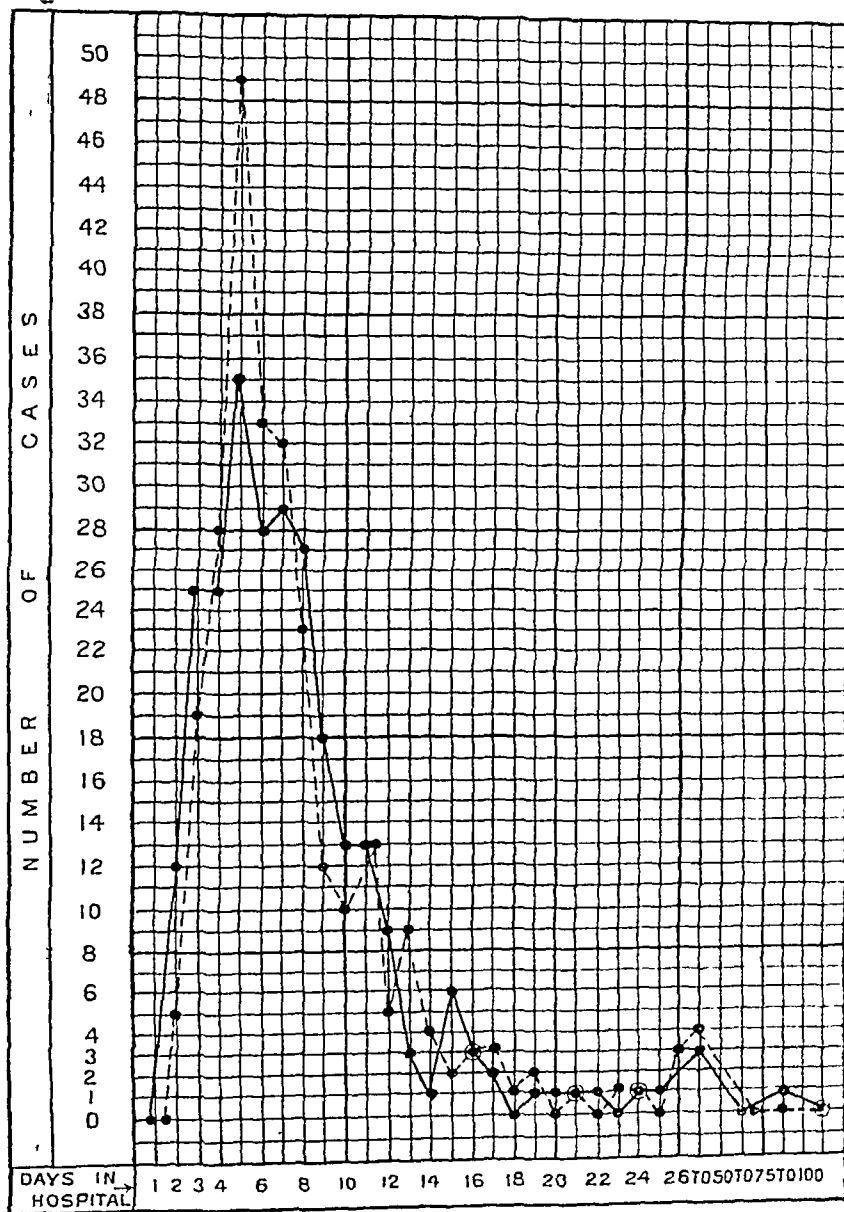
Plotting the number of days spent in hospital per 100 admissions from the experimental quininized (black) and control non-quininized (dotted) groups of companies for each month of the year under investigation

The actual figures from which the curve is plotted are tabulated below it. Those in each upper line show the actual total days passed in hospital per month by the total monthly admissions immediately beneath them

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CHART III

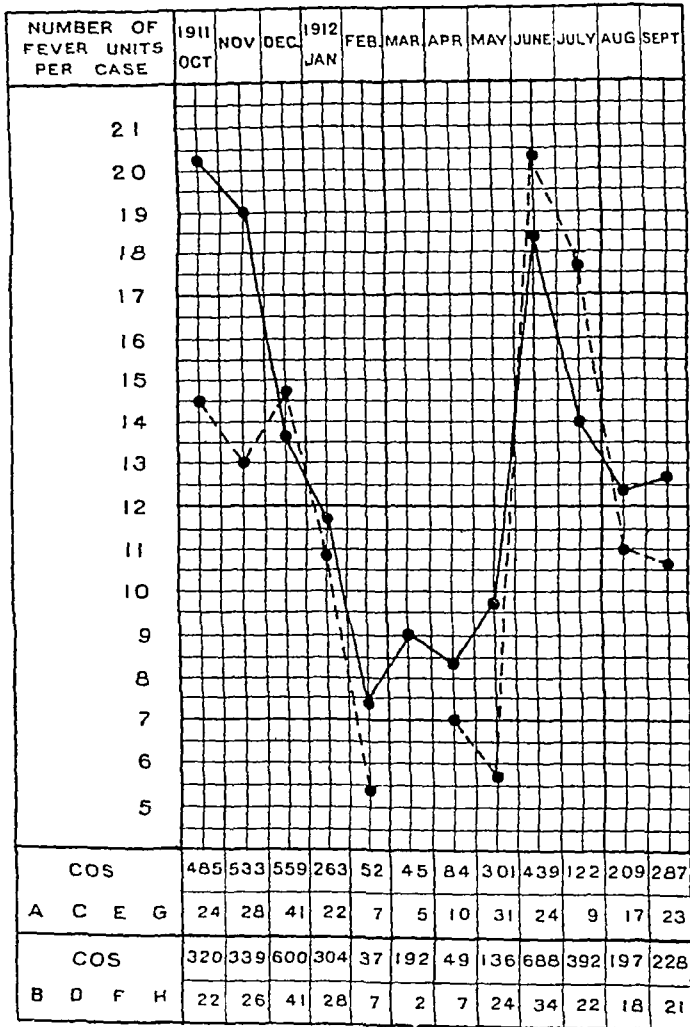


Plotting the frequency distribution of fever cases amongst the experimental quininized (black) and control non-quininized (dotted) companies to the days they spent in hospital

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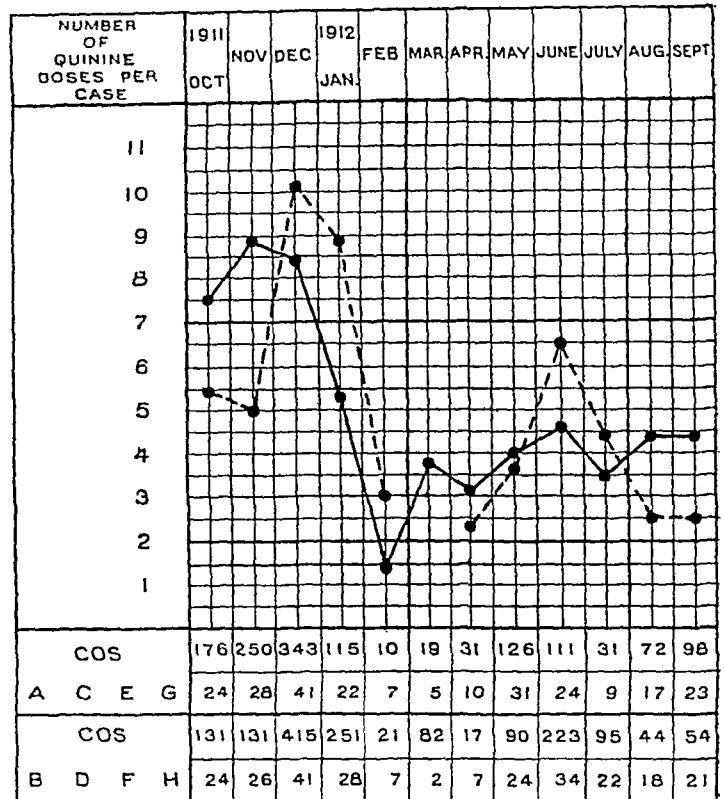
CHART IV



Plotting the number of degrees of fever suffered per each admission from the experimental quininized (black) and control non-quininized (dotted) groups of companies for each month of the year under investigation

The actual figures are tabulated below the curve. Those in each upper line give the actual total degrees of fever suffered per month by those of the total monthly admissions whose temperature charts are available for reference, the number of which are set out in each lower line

CHART VI



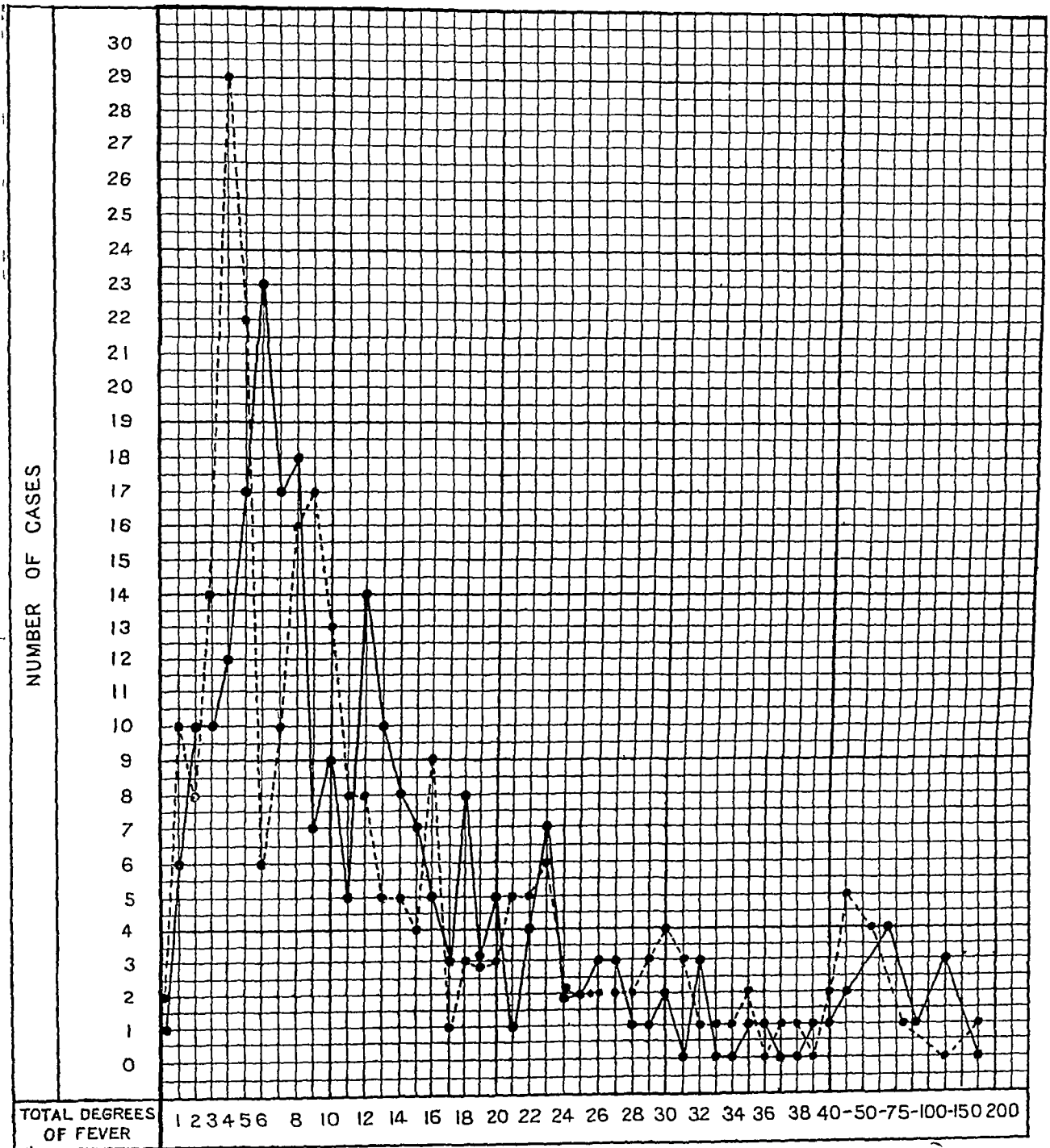
Plotting the number of ten grain doses of quinine required by each admission from the experimental quininized (black) and control non-quininized (dotted) groups of companies for each month of the year under investigation

The actual figures are tabulated below the curve. Those in each upper line give the actual total number of doses of quinine required per month by the total monthly admissions whose temperature charts are available for reference, the number of which are set out in each lower line

STUDIES IN MALARIA.

BY CAPTAIN H STOTT, V.B., I.M.S.,
surgeon to His Excellency the Governor of Madras.

CHART V



Plotting the frequency distribution of the fever cases amongst the experimental quinnized (black) and control non-quinnized companies to the degrees of fever they had

(i) *By the total number of days each patient remained sick in Hospital*

(ii) *By the intensity of the actual febrile disturbance*, as measured by the sum of the number of degrees above 99°F which were recorded at each reading of the patient's temperature taken four times in the 24 hours (8 A.M. noon, 4 & 8 P.M.)

(iii) *By the number of grains of quinine required* before the pyrexia fell to normal and remained thereat until the patient's discharge

(iv) *By the tendency to relapse*

The first of these characters explains itself. To simplify calculations required to estimate the second character any fraction of temperature over one half a degree was counted as one, and under one half was neglected.

With regard to the third character one remark is necessary. It is not right to assume that the number of grains of quinine indicated by the definition in any individual case temporarily cured that case, but only, that after the amount shewn the temperature fell to normal and remained thereat until discharge as defined. Subsequent to this, quinine, as mentioned above, was continued for ten consecutive days and aided the temporary cure. This amount of quinine is in no case included.

With regard to the fourth character, though this does not afford so reliable an indication as the remaining three, yet, since the treatment adopted in hospital and thereafter was practically invariably the same in all cases of both groups, the frequency of relapse should afford some indication of the severity of the original admission.

Correlation tables shewing mathematically the degree of relationship existing between the first three of the characters chosen for the estimation of the severity of the malarial attack are set out in the appendices G & H. The co-efficient of correlation for the two factors of days passed in hospital and degrees of fever suffered by companies A, C, E, and G works out to 0.658 with a probable error of ± 0.024 . For the same factors of companies B, D, F, and H the figure is 0.661 with a similar probable error. The correlation between the doses of quinine taken and the degrees of fever suffered is somewhat less, the coefficient working out in the case of companies A, C, E, and G to 0.538 with a probable error of ± 0.031 and for companies B, D, F, and H to 0.584 with a probable error of ± 0.028 . The criteria already chosen above will now be applied to the admissions from the experimental group of quinized companies (A, C, E, G) and their non-quinized controls (B, D, F, H).

THE RESULTS OF THE TRIAL

The results of the trial under the heads of the criteria already chosen are set out in the following series of charts and tables.—

I THE FEVER ADMISSION RATE.

Chart I sets out the group strengths (upper line) with the actual number of admissions (lower line) each in figures, whilst the ratio of cases per mille of strength is shewn as a curve for either group during each month of the period under investigation. It will be clear at a glance how closely the ratio of admissions from the quinized and non-quinized companies approximate one another. This approximation can be more accurately appreciated by the total figures for the twelve months as set out in the following table—

| October 1911 to September 1912 | Total Strength | Total Fever admissions | Rate per 1000 Strength |
|--|-------------------|------------------------------|------------------------------|
| Cos A, C, E, G (taking quinine) | 3,931 | 259 | 65.8 |
| Cos B, D, F, H (not taking quinine) | 3,906 | 265 | 67.8 |

This table indicates that there was a saving of two admissions per 1000 strength amongst those companies who took prophylactic quinine. In other words it may be said that out of each 500 men taking the drug prophylactically for a year one was saved from an attack of fever. Estimating primary admissions only instead of total admissions the rate in favour of the prophylactic quinized companies is raised to 2.6 per 1000 strength as shewn by the following table—

| Oct 1911 to Sept 1912 | Total Strength | Primary admis- sions | Rate per 1000 Strength |
|--|-------------------|----------------------------|------------------------------|
| Cos A, C, E, G (taking quinine) | 3,931 | 170 | 43.2 |
| Cos B, D, F, H (not taking quinine) | 3,906 | 179 | 45.8 |

II THE DEGREE OF SEVERITY OF ATTACK.

As estimated by the following four characters—

(i)—*The days spent in Hospital*

Chart II records the actual number of cases of malaria (lower line) with the total days they spent in hospital (upper line), and the ratio of days in hospital per 100 admissions in the form of a curve for both groups of companies during the year. The similarity of the two monthly curves is to be noted. As before, the actual totals for the year makes the comparison easier. They are set out in the tables below.

| Oct 1911 to Sept 1912 | Days in Hospital | Number of admissions | Number of days in Hospital per case |
|-------------------------------------|------------------|----------------------|-------------------------------------|
| Cos A, C, E, G (taking quinine) | 2,047 | 259 | 7 903 |
| Cos B, D, F, H (not taking quinine) | 2,109 | 264 | 7 988 |

The table shews a saving of 0 085 days in hospital per admission in favour of the quinnized companies. During the year there were 523 admissions for malaria who spent between them 4,156 days in hospital. The table indicates that, so far as its figures go, if the entire regiment had taken prophylactic quinine there would have been a probable saving of $(523 \times 0.085 =)$ 44 days in hospital on the total of 4,156 (i.e., a saving of 1 0% of days). Chart III sets out the actual figures in the form of a frequency distribution. The general close symmetry of the two curves is again observed. From the chart can also be readily determined the number of cases which passed any given number of days in hospital, and *vice versa*.

(vi)—*The Number of Degrees of Fever*

As before, this character may be best determined by the examination of a monthly graph, summary table for the year and a frequency distribution curve. Chart IV* plots the monthly average number of fever degrees per case. It also presents the actual figures from which the ratios are calculated. The close resemblance of the two curves is apparent. This is borne out by the yearly totals summarised below—

| October 1911 to September 1912 | Degrees of Fever | Number of Charts | Number of degrees of Fever per case |
|-------------------------------------|------------------|------------------|-------------------------------------|
| Cos A, C, E, G (taking quinine) | 3,379 | 241 | 14 0207 |
| Cos B, D, F, H (not taking quinine) | 3,482 | 252 | 13 8174 |

It can be readily calculated that there is a difference of 0 2033 degrees per case in favour of each admission which had not received prophylactic quinine. Provided then these figures hold, it follows that if the entire regiment had taken no prophylactic quinine at all, the 523 admissions would have probably saved $(523 \times 0.2033 =)$

106 degrees of fever on the total number suffered (6861)—a saving of 1 6%.

The frequency distribution curve (chart V) also bears out the close relation between the two groups of companies as judged by this character.

(vii)—*The Doses of Quinine required*

Chart VI sets out the actual number of ten-grain doses of quinine required by the respective groups above those of the actual malarial admissions for each month of the year. The ratio curves of the number of doses required per case for the quinnized and non-quinnized companies again follow one another very closely. The summary table for the year indicates a difference of 0 4322 ten-grain doses of quinine per admission in favour of the quinnized companies.

| October 1911 to September 1912 | Ten grain doses Quinine | Number of Charts | Number of doses of Quinine per case |
|-------------------------------------|-------------------------|------------------|-------------------------------------|
| Cos A, C, E, G (taking quinine) | 1,382 | 241 | 5 7344 |
| Cos B, D, F, H (not taking quinine) | 1,554 | 252 | 6 1666 |

This means that provided these figures hold, there would presumably have been a saving on the 523 admissions of $(523 \times 0.4322 =)$ 226 doses of quinine on a total of 2,936 given during the year—a saving of 7 6%.

The close approximation of the two frequency distribution curves (chart VII) is again noteworthy. Their apparent intermittency is a mechanical effect due to the method of calculation adopted and is of no significance.

(viii)—*The Tendency to Relapse*

The following table divides the total admissions amongst the two groups of companies into primary and re-admissions, the tendency to relapse proving slightly less amongst the non-quinnized group—

| October 1911 to September 1912 | Total Admissions | Primary Admissions | Re admissions | Per cent of Re admissions |
|-------------------------------------|------------------|--------------------|---------------|---------------------------|
| Cos A, C, E, G (taking quinine) | 259 | 170 | 89 | 52% |
| Cos B, D, F, H (not taking quinine) | 265 | 179 | 86 | 48% |

This table indicates that provided these figures hold and the regiment did not take any prophylactic quinine at all, there would have been a probable saving on the 523 admissions of— $(523 \times 4 - 100 =)$ 21 re-admissions on a total of 175—a saving of 12%.

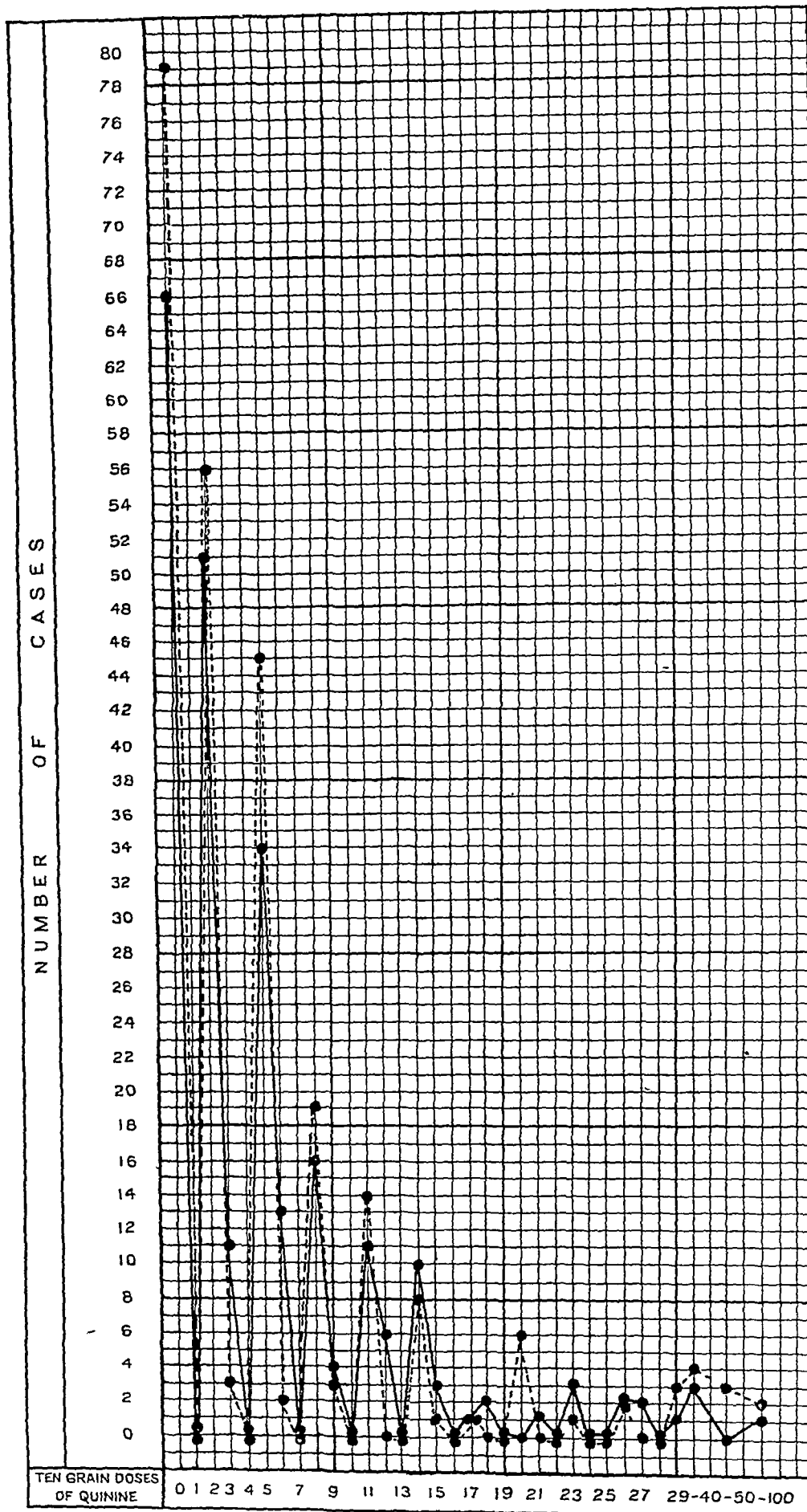
(To be continued)

* The dotted curve in the charts II, IV, & VI for the month of March is not traced. With only three admissions during the month one spent 27 days in hospital with 187 degrees of fever and required 80 ten grain doses of quinine. This case is included in the frequency distribution and total yearly tables, but is omitted from the charts as its influence is overpoweringly disproportionate to the other cases shewn.

STUDIES IN MALARIA.

BY CAPTAIN H STOTT, M.B., I.M.S.,
Surgeon to His Excellency the Governor of Madras

CHART VII



To show the frequency distribution of the fever cases amongst the experimental quinized (black) and control non-quinized companies to the number of ten grain doses of quinine they had

DYSENTERY *

Its case mortality in relation to treatment with special reference to Emetine, with the object of elucidating on purely clinical grounds—the incidence of Amoebic Dysentery on Tea gardens

B. F. C. McCOMBIE, M.D. & B.S. (Lond.), D.T.M. & H.,
(Camb.),

President, Assam Branch, B.M.A.

GENTLEMEN,—

I suppose that none of us question the efficacy of emetine in the treatment of amoebic dysentery, but there has been a good deal of discussion lately as to the value of the specific in dysentery as it occurs on tea gardens, in other words whether amoebic dysentery is at all prevalent up here. The general opinion of those with whom I have discussed the matter is that it is comparatively rare, and it occurred to some of us that if notice were given to members that a discussion on the point would be raised at the next meeting, we might all come prepared with statistics, and with the sum total of all the figures available, we could get a very fairly definite idea of the percentage of cases in which emetine was of value. It would also be useful in the same connection to consider the other forms of treatment of dysentery as they occur in our practices. Hence the notice.

In order to obtain a clearer idea of the subject for comparative purposes it occurred to me that a few figures from other sources would be useful.

Rogers, in his recent book on dysenteries, gives the case mortality of amoebic dysentery before the introduction of emetine as 13 out of 30 cases, a case mortality of 43.3 per cent with emetine the case mortality dropped to 3 out of 30 cases that is 10 per cent. A reduction in mortality of 33 per cent.

With regard to bacillary dysentery he quotes the case mortality of the epidemic form in Japan as 30 per cent. At El Tor among the Mecca pilgrims in 1909 it was 64.4 per cent which was reduced by serum treatment in 1910 to 10.8 per cent, a remarkable reduction which should be carefully noted in relation to treatment.

He notes also that the case mortality for all kinds of dysentery in the Campbell and Medical College Hospitals, Calcutta, for 1907-11 was 41 per cent, a considerable proportion of which are undoubtedly neglected and long standing cases.

As an example of what can be done under early and skilled treatment he quotes the following figures in Table I—

Prevalence and case mortality of dysentery in India 1900-10

| | Admission per 1,000 | Case mortality |
|--------------|---------------------|----------------|
| British Army | 12.0 | 2.93% |
| Indian „ | 33.6 | 0.51 „ |
| „ Jails | 70.3 | 5.29 „ |

Davidson in Allbutt's *System* in his article on Bacillary dysentery quoting the Bengal jail figures for 1896-7 giving a case mortality of 3.8 per cent throws doubt on the accuracy of the diagnosis and suggests that most of these cases are probably simple catarrh of the large intestine. Certainly these figures are not approached anywhere else in the world. He continues—

In Japan (Shiga's figures) 16.5 to 30.2 per cent.

In civil hospitals in the tropics which are more comparable to our own tea garden hospitals, he gives—

| | | |
|------------------|------|--------|
| Ceylon hospitals | 1903 | 28.7% |
| Singapore | 1902 | 25.4 „ |
| Selangor | — | 34.0 „ |
| Hongkong | 1902 | 37.3 „ |

Osler on Amoebic dysentery gives as the case mortality in his series of cases 23.5 per cent.

Turning now to my own figures, Table II gives figures for gardens in Bishnath, case incidence per 1,000 and case mortality for 1909 and 1910. The case mortality for 1909 was 31.8% and for 1910 24.2, in which year dysentery accounted for nearly one-third of the total death-rate on the gardens noted.

Table III gives similar figures for my present district for 1911-1912-1913. In 1911 the case mortality was 19.7, in 1912 26.5, and in 1913 29.1%. The total for the three years is 1,282 cases with 329 deaths which works out to just over 25%, and accounts for 22% of the total deaths occurring in my practice.

It will be noticed how enormously the death-rate differs on different gardens, one showing a case mortality of 9% and one going up to as high as 59.3%. I can find no explanation which will reconcile these figures.

Emetine was used in a few cases in 1912 and more generally in 1913, with no appreciable reduction of the case mortality according to these figures, in fact it was slightly increased.

That seems to indicate that *prima facie* emetine is not of great value on tea gardens.

To investigate the matter more closely I called in all my dysentery bed head tickets for 1913 and managed to obtain 226, upon which all my figures are based.

Looking at Table IV which attempts to analyse these cases, it will be noticed at once that the case mortality reaches the high figure of 42.4% or over 11% above that noted in Table III. This means of course that certain mild cases on some gardens are being treated as O.P.'s or that if admitted no tickets are made for them.

My first endeavour was to separate out primary and secondary dysentery, and one was met at once with difficulties like this. A child is attacked with dysentery, and round worms are expelled during the treatment. Is this verminous dysentery, or is it a primary dysentery in a patient with

* Paper read before the Assam Branch, B.M.A., 26th April, 1914.

round worms? Similarly an anæmic patient may have an attack of primary dysentery

In the majority of cases, however, it is fairly obvious from the tickets, and the results of the investigation show that out of 226 cases 24 or 10.6% are secondary cases

I then divided them into acute and chronic on admission. This again was not always obvious, as coolie histories are notoriously most unreliable, and I came to the conclusion, since confirmed by enquiry that coolies rarely come to hospital for immediate treatment for dysentery. It is so common a disease in their country that they do not pay much attention to it, and usually try their own native treatment before going to hospital, so that we probably get the majority in a late stage, but not necessarily chronic.

My next step was to divide the cases under these headings into those who during treatment received emetine and those who did not.

With these preliminary remarks I pass to the consideration of the figures for what they are worth and note the inferences I have drawn from them. Not being a statistician I doubtless have not made best use of them and my inferences may not be correct, but certain interesting facts stand out.

Dealing with secondary cases first, one notes that out of 24 cases 21 died, *i.e.*, 87.5 per cent, which shows the fatal nature of this form. The case mortality of the emetine and non-emetine series is practically the same which confirms Rogers' results that terminal or secondary dysenteries are mostly bacterial in origin, as emetine makes practically no difference to the death-rate.

The case mortality of primary acute cases under all forms of treatment is 26.5 per cent and of primary chronic reaches the high figure of 80 per cent. The death-rate of the emetine series of primary acute cases is 51.8 and without emetine 13.8 per cent, but one cannot infer from this that emetine increases the death-rate, but merely that, that 28 cases were not allowed to die without trying emetine. In primary chronics the result of emetine is even more disappointing as they shew a case mortality of 94.4 per cent and 24.4% against 68.1% of the non-emetine series.

Totalling the whole series we find that 87 cases treated with emetine at some time during the treatment shew a death-rate of 66.6%, *i.e.*, about 33% responding to the action of the specific and the death-rate of the non-emetine series is 27.3% or 38 out of 139 cases.

We now come to the closer investigation of the emetine series, and I omit for obvious reasons from this the secondary cases. Dealing with 72 primary cases who received emetine during the treatment we come to Table V, which shews 27 recoveries and 45 deaths. Of the recoveries 18 were cured by emetine, 4 were improved (possibly cases of mixed infection), and in 5 emetine

had no result. Among the deaths, emetine cured 3 (who subsequently died of other diseases), improved 4, and in 38 had no result. Therefore we arrive at the figures that out of 72 primary cases, 21 were cured by emetine, 8 were improved, and in 43 emetine had no result, which gives us a figure of 29.1% of cures which may be ascribed to the specific. I would point out that this agrees very closely with the figure of 33% shewing the action of the specific in Table IV.

Of the 18 cures 7 were treated from the outset by emetine.

Of the 18 cures 8 were cured after failure of salines.

Of the 18 cures 3 were cured after failure of salines and ipecac.

Of the 4 cases improved the stools gradually improved after emetine in conjunction with other treatment and can scarcely be called cures by it.

Of the 5 with emetine no result—

1 Cured by salines and dysentery powder, relapsed and after failure of emetine was cured by salines.

2 Cured by salines followed by ipecac, relapsed, and after failure of salines, and curiously enough of emetine, was cured by a turpentine emulsion.

3 After ipecac, salines, and emetine and dysentery powder had had no effect, got better after the exhibition of small doses of ipecac with sulphur.

4 After failure of emetine, cleared up with castor oil emulsion and dysentery powder.

5 Relapsed twice and after failure of emetine got better with ext. *lunche and bael*.

Among the deaths I noted four cases in which the cure is attributed to ipecac, but on relapse emetine was found to be no good. One of them having twice got better with ipecac, should have been an ideal case for emetine, but it failed.

This shows the difficulty of demonstrating the effectiveness of the drug used in determining the cure.

In case any one should say that emetine has only been tried as a last resource in many cases and that this accounts for my results I would mention that out of 38 deaths, in which it is noted that emetine had no result in 5, treatment was begun by emetine, in 12 salines were followed by emetine, in 7 emetine followed a preliminary trial of ipecac, and in 8 emetine was tried after the failure of salines and ipecac, so that 33 cases at least had a very good chance to respond to the action of the specific.

My next Table No VI was obtained by separating out cases where treatment was begun as indicated by the headings and the number that were cured by that treatment, omitting those who died or passed on to other treatment. I must mention in explanation that the standing order in my hospitals is that dysentery cases on admission are generally to be treated by the exhibition of salines, with dysentery powder to control the resulting diarrhoea (dysentery powder

being some variation of Bismuth, Pulv Ipecac Co and Salol), or if no improvement is noted, ipecac and now-a-days emetine is to be tried. Hence the reason that 116 of the cured out of 202 began treatment with salines

Of these 116 we note that these were cured —

| | | | |
|----|---------------------------------------|--|------------------------|
| | By Salines alone | 29 | } 39 or 33.7 per cent |
| - | " and Dysentery Powder | 10 | |
| | " and Ipecac | 21 | } 28 or 24.2 per cent |
| | " and Emetine | 7 | |
| 43 | 26 began treatment with Ipecac Cures | 7 | } 15 or 34.8 per cent. |
| | 17 began treatment with Emetine Cures | 8 | |
| | | 30 began treatment with Castor Oil Cures | 21 |

(These were mostly children)

Forty-three cases began treatment with ipecac or emetine, an attempt to diagnose amoebic dysentery which was only successful in 34.8 per cent, which figure we again note being a probable indication of the prevalence of the amoebic type.

Although it took a considerable time to work out, I am much afraid that this table does not shew anything more than the probabilities in my practice of how 202 cases of dysentery would be treated and the results to be expected therefrom.

It is very difficult in a scattered practice to control treatments, as Babus must be allowed to exercise a certain amount of discretion, and are very apt to change and mix treatments when one would do otherwise oneself, but I hope some one will be able to produce series of cases in which what one might term pure treatments are employed and give us a careful analysis of his results.

I made one other analysis with the object of finding out whether the fact of the case being admitted with fever gives any indication for treatment. It shews that only $\frac{1}{3}$ rd of our cases come in with fever, which supports my opinion that we do not get them in the early stages. There is a slight difference in favour of emetine in those admitted without fever and the death-rate of primary acute cases admitted with fever, *ie*, really early cases

treated with other (mostly saline) treatment is as low as 4.5, which seems to bear out the contention that the results obtained in Indian Jails are possible if only we could get our cases early enough.

My conclusions from my own figures are as follows —

1 That the case mortality in dysentery has slightly increased since the introduction of emetine.

2 There are indications in the figures that about 30 per cent of cases are amoebic.

3 That emetine is useless in secondary dysenteries, *ie*, they are not generally amoebic.

4 That the same remark applies to primary chronic cases.

5 That the rational treatment is a course of salines followed by emetine, *ie*, in the absence of a microscopical examination or other special indication.

6 That the treatment of dysentery as it occurs on the tea gardens is unsatisfactory, owing mostly to our not getting our cases early enough, and I would like to discover a more satisfactory treatment for the cases as we get them. I have had very little experience of Forster's Vaccine or Dysentery serum. What little I had did not encourage me to persevere with them. Perhaps other members have had better results. It seems to me that our only hope is a vaccine treatment of sorts, and that if we had some one with time to devote to the subject, to go into the whole question bacteriologically, it might be possible that a vaccine suitable for Assam might be made, which would give us a better chance of success in dealing with this very intractable and fatal disease.

TABLE I

Prevalence and Case Mortality of Dysentery in India, 1906—1910

| — | Admission per 1,000 | Case Mortality. |
|--------------|---------------------|-----------------|
| British Army | 13.0 | 2.93% |
| Indian Army | 33.6 | 0.51% |
| " Jails | 70.3 | 5.29% |

TABLE II
Bishnath

| — | 1909 | | | | 1910 | | | | | |
|---------------|-------|--------|----------------|-------|-------|------------------|------------------|----------------|-------------------------|-----------------|
| | Cases | Deaths | Case Mortality | Pop | Cases | Per 1,000 of Pop | Dysentery deaths | Case Mortality | Total deaths all causes | % of dys deaths |
| 1 Deplonga | 68 | 13 | 19.1 | 600 | 43 | 71 | 1 | 23.2 | 28 | 3.5 |
| 2 Mijika | 110 | 7 | 6.3 | 2,016 | 148 | 73 | 18 | 12.2 | 86 | 20.9 |
| 3 Petarabghar | 63 | 31 | 49.2 | 1,589 | 72 | 45 | 17 | 23.6 | 67 | 25.3 |
| 4 Ghuladhari | 99 | 56 | 56.5 | | 63 | | 15 | 23.8 | 43 | 34.8 |
| 5 Mijuli | | | | 2,678 | 92 | 35 | 43 | 46.7 | 92 | 46.7 |
| 6 Tezalpati | | | | 1,009 | 78 | 77 | 19 | 24.3 | 61 | 31.1 |
| 7 Dikora | 49 | 17 | 34.6 | 1,261 | 37 | 29 | 16 | 43.2 | 54 | 29.6 |
| TOTALS | 389 | 121 | 31.8 | 9,103 | 532 | 57 | 129 | 24.2 | 431 | 29.9 |

TABLE III.
Dysentery

| | 1911 | | | 1912 | | | 1913 | | | Case Mortality for 3 years |
|---------------|-------|--------|------|-------|--------|------|-------|--------|------|----------------------------|
| | Cases | Deaths | % | Cases | Deaths | % | Cases | Deaths | % | |
| 1 Balyun | 8 | 1 | 12.5 | 25 | 4 | 16 | 17 | 6 | 35.2 | 22.0 |
| 2 Chabur | 67 | 14 | 20.8 | 89 | 40 | 44.9 | 47 | 28 | 59.3 | 40.3 |
| 3 Diguntarang | 61 | 13 | 21.3 | 101 | 26 | 25.7 | 43 | 13 | 30.2 | 25.3 |
| 4 Dunjan | (?) | (?) | | (?) | (?) | | 16 | 6 | 37.5 | 37.5 |
| 5 Gelapukri | (?) | (?) | | (?) | (?) | | 20 | 10 | 50.0 | 50.0 |
| 6 Hazelbank | 14 | 1 | 7.1 | 34 | 1 | 2.9 | 25 | 6 | 24.0 | 10.9 |
| 7 Lumbuguri | 21 | 11 | 51.9 | 12 | 5 | 41.6 | 22 | 2 | 9.0 | 18.9 |
| 8 Mokilbari | 51 | 11 | 21.5 | 25 | 5 | 20.0 | 8 | 1 | 12.5 | 20.2 |
| 9 Nadua | (?) | (?) | | (?) | (?) | | 10 | 2 | 20.0 | 20.0 |
| 10 Nahortoh | 61 | 8 | 13.1 | 35 | 3 | 8.5 | 76 | 7 | 9.2 | 10.4 |
| 11 Nokhroy | 24 | 5 | 20.8 | 85 | 23 | 27.0 | 41 | 19 | 46.3 | 31.3 |
| 12 Runggora | (?) | (?) | | (?) | (?) | | 32 | 7 | 21.8 | 21.8 |
| 13 Seikotee | 48 | 12 | 25.0 | 32 | 11 | 34.3 | 67 | 18 | 26.8 | 27.9 |
| 14 Thanai | | | | | | | | | | |
| 15 Woodbine | 15 | 4 | 26.6 | 42 | 10 | 23.8 | 29 | 7 | 24.1 | 24.4 |
| TOTALS | 349 | 69 | 19.7 | 480 | 128 | 26.5 | 453 | 132 | 29.1 | 25.7 |
| | Total | | | | | | | | | 1,282 |
| | | | | | | | | | | 329 |

TABLE IV
Analysis of 226 Dysentery Bed Head Tickets

| | PRIMARY | | | | | | SECONDARY | | | | | | TOTAL | | | | | | GRAND TOTAL | | |
|---------|--------------|--------|----------------|-----------------|--------|----------------|--------------|--------|----------------|-----------------|--------|----------------|--------------|--------|----------------|-----------------|--------|----------------|-------------|--------|----------------|
| | EMETINE USED | | | WITHOUT EMETINE | | | EMETINE USED | | | WITHOUT EMETINE | | | EMETINE USED | | | WITHOUT EMETINE | | | Cases | Deaths | Case Mortality |
| | Cases | Deaths | Case Mortality | Cases | Deaths | Case Mortality | Cases | Deaths | Case Mortality | Cases | Deaths | Case Mortality | Cases | Deaths | Case Mortality | Cases | Deaths | Case Mortality | | | |
| Acute | 54 | 28 | 51.8 | 108 | 15 | 13.8 | 162 | 43 | 26.5 | | | | 2 | 1 | 50.0 | | | | 164 | 44 | 26.8 |
| Chronic | 18 | 17 | 94.4 | 22 | 15 | 68.1 | 40 | 32 | 80.0 | 9 | 8 | 88.8 | 22 | 20 | 90.9 | 31 | 29 | 93.5 | 62 | 52 | 83.6 |
| | 72 | 42 | 62.5 | 130 | 30 | 23 | 202 | 75 | 37.1 | 9 | 8 | 88.8 | 24 | 21 | 87.5 | 87 | 58 | 66.6 | 226 | 96 | 42.4 |

TABLE VI
Shewing details of treatment of 202 Primary cases of Dysentery

| Primary. | Salines only | | | Salines followed by Dysentery Powder | | | Salines followed by Ipecac | | | Salines followed by Emetine | | | Salines followed by various | | | Total of cases commencing with Salines | | | Began with Ipecac | | | Began with Emetine | | | Total begun with Ipecac or Emetine | | | C O E or C O followed by Dysentery Powder | | | Various | | |
|--|--------------|-------|---------------|--------------------------------------|-------|---------------|----------------------------|-------|---------------|-----------------------------|-------|---------------|-----------------------------|-------|---------------|--|-------|---------------|-------------------|-------|---------------|--------------------|-------|---------------|------------------------------------|-------|---------------|---|-------|---------------|---------|---|--------|
| | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | Cases | Cures | Recovery rate | | | |
| Acute Average days for H S Chronic Average days for H S | 32 | 29 | 90.6 | 15 | 10 | 66.6 | 35 | 20 | 57.1 | 13 | 7 | 53.8 | 4 | 1 | 25.0 | 99 | 67 | 67.6 | 19 | 7 | 36.8 | 12 | 5 | 41.6 | 31 | 12 | 38.7 | 24 | 21 | 87.4 | 8 | 4 | 50.0 |
| | | (5.5) | | | (7) | | (7.7) | | | | (8) | | | (8) | | | 17 | 1 | 5.8 | 7 | 0 | | 5 | 3 | 60.0 | 12 | 3 | 25.0 | 6 | 0 | | 5 | (11.2) |
| | 32 | 29 | 90.6 | 13 | 10 | 55.5 | 44 | 21 | 47.7 | 16 | 7 | 43.7 | 6 | 1 | 16.6 | 116 | 68 | 58.6 | 26 | 7 | 26.9 | 17 | 8 | 47.0 | 43 | 15 | 34.8 | 30 | 21 | 70.0 | 13 | 4 | 30.7 |
| 39 cures = 33.7% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 cures = 24.2% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

TABLE V.

Shewing particulars of 72 Primary Dysentery cases who received Emetine during treatment —

27 CURES DEATHS 45 (62.5%).

| | Cures due to Emetine | Improved | No Emetine result | Cures due to Emetine | Improved | No Emetine result | Total |
|---|----------------------|----------|-------------------|----------------------|----------|-------------------|-------|
| Acute | 17 | 4 | 5 | 1 | 2 | 25 | 54 |
| Chronic | 1 | | | 2 | 2 | 13 | 18 |
| Average No of days to produce healthy stool after Emetine | 5 | 4 | 5 | 4 | 4 | 38 | 72 |

Total cured 21=29.1%

A Mirror of Hospital Practice.

REVIEW OF A YEAR'S MEDICO LEGAL WORK IN THE CALCUTTA MORGUE, 1913.

BY H B FOSTER, M.D.,

MAJOR, I.M.S.,

Police Surgeon of Calcutta, and Professor of Medical Jurisprudence, Medical College, Calcutta.

DURING the year 1913, 281 cases were sent by the Calcutta Police for *post-mortem* examination (against 252 in 1912), as cases in which death appeared to occur under more or less suspicious circumstances

TABLE I

Distribution of the 281 cases according to months and quarters of the year —

| | | |
|-----------|----|------------------------|
| January | 25 | 72 in the 1st quarter. |
| February | 18 | |
| March | 29 | |
| April | 16 | 54 in the 2nd quarter. |
| May | 11 | |
| June | 27 | |
| July | 21 | 80 in the 3rd quarter. |
| August | 22 | |
| September | 37 | |
| October | 29 | 75 in the 4th quarter. |
| November | 24 | |
| December | 22 | |

TOTAL 281 281

TABLE II.

Number of cases according to sex.—

| | |
|-----------|-----|
| Males | 211 |
| Females | 69 |
| Not known | 1 |

TOTAL 281

The sex of one case could not be made out as only the upper half of the body of a foetus was sent for examination.

TABLE III

Number of cases according to race —

| | |
|---------------------|------------|
| Hindu | 184 |
| Mahomedan | 53 |
| European | 12 |
| Eurasian | 10 |
| Chinese | 4 |
| Indian Christian | 1 |
| Doubtful or Unknown | 17 |
| TOTAL | 281 |

TABLE IV

Number of cases according to age-periods —

| | |
|---|------------|
| At or about the time of birth | 13 |
| Up to and including 1 year of age | 3 |
| Above 1 and up to and including 5 years | 6 |
| " 5 years | 10 |
| " 10 " | 15 |
| " 15 " | 20 |
| " 20 " | 25 |
| " 25 " | 30 |
| " 30 " | 35 |
| " 35 " | 40 |
| " 40 " | 45 |
| " 45 " | 50 |
| " 50 " | 55 |
| " 55 " | 60 |
| " 60 " | 65 |
| " 65 " | 70 |
| " 70 " | 75 |
| " 75 " | 80 |
| TOTAL | 281 |

TABLE V

Number of inquests held —

The City Coroner held an inquest in 218 cases
 No inquest was found to be necessary in 63 "

TOTAL 281

TABLE VI

The viscera preserved at the time of *post-mortem* examination were disposed of as follows:—

| | |
|--|------------|
| Sent to the Chemical Examiner to Government for analysis | 128 |
| Destroyed after disposal of the case, under instructions from the Commissioner of Police | 153 |
| TOTAL | 281 |

TABLE VII

Result of the Chemical Examiner's analysis in the cases examined by him —

| | |
|---|------------|
| Poisons found (including cases in which alcohol only as differing from other poisons found) | 81 |
| in | 47 |
| No poisons found in | — |
| TOTAL | 128 |

TABLE VIII

Analysis of the 81 cases of poison found by the Chemical Examiner —

| | |
|--|----|
| Opium | 38 |
| Alcohol only | 15 |
| Opium & alcohol | 7 |
| Opium & atropine | 1 |
| Morphine | 1 |
| Cocaine | 2 |
| White arsenic (including 1 case in which "rough on rats" was used) | 3 |
| Yellow arsenic | 6 |
| Carbolic acid | 4 |
| Nitric acid | 2 |
| Hydrochloric acid | 1 |
| Barium & alcohol | 1 |

TOTAL 81

It is interesting to note how opium continues to maintain the first place among the poisons found by the Chemical Examiner in the viscera, stomach contents, and samples of urine sent to him for analysis from the Calcutta Morgue. Attention has already been drawn to this frequently enough. Opium accounts for 46.9 per cent of all cases in which poison was detected (against 56.3 per cent in 1912), excluding those cases in which opium was discovered in combination with alcohol and other poisons. I need hardly dilate on this subject after all that has been written about it in previous reports.

In table VIII is included a case of death from poisoning with the carbonate of barium. This is of rare occurrence. It took place in June, 1913, in the case of an Eurasian male, aged 30 years, who had been a gunner on board a ship. The poison was taken with suicidal intent.

Particular attention may be drawn to two cases in which cocaine was found, also two cases in which death was due to poisoning with pure nitric acid (both suicidal), and four in which the cause of death was pure carbolic acid (1 accidental and 3 suicidal).

TABLE IX

The total number (281) of cases sent up for *post-mortem* examination classified according to nature of death —

| | |
|------------------------------------|-----|
| I Natural causes— | 59 |
| Cases where no inquest was held | 36 |
| Cases in which an inquest was held | 95 |
| II Violent deaths— | 186 |
| (including deaths by poisoning) | — |

TOTAL 281

The percentage of deaths from natural causes to all deaths in which a *post-mortem* examination was held was 33.8 in 1913 against 37.3 in 1912.

TABLE X

The 186 violent deaths classified—

| | |
|---|----|
| 1. Deaths by accident or misadventure | 70 |
| 2. Suicidal cases | 74 |
| 3. Homicidal cases | 18 |
| 4. Doubtful (on the evidence adduced) | 16 |
| 5. Due to rash and negligent acts (generally without criminal intent) | 8 |

TOTAL .. 186

This table shows an increase of deaths due to rash and negligent acts, *viz.* 8 in 1913 as compared with 2 in 1912

Analysis of the deaths due to natural causes—

The causes of deaths in these cases were on the whole very similar to those reported in the previous years

TABLE XI.

Analysis of the 70 accidental (violent) deaths—

These may be arranged in the following manner according to the cause of deaths —

| | | |
|-------|------------------------------|--------------------------------|
| 1 | Poisons— | |
| | (1) Opium | 1 |
| | (2) C O (from charcoal fire) | 1 |
| | (3) Yellow arsenic | 1 |
| | (4) Carbolic acid | 1 |
| 2 | Motor car accidents | 6 |
| 3 | Falls from a height | 18 |
| 4 | Tramway accident | 3 |
| 5 | Burns | 3 |
| 6 | Drowning | 13 (cocaine found in one case) |
| 7 | Carriage accidents | 3 |
| 8 | Railway accidents | 6 |
| 9 | Struck by falling objects | 10 |
| 10 | Bullock cart accidents | 2 |
| 11 | Accidental wound | 1 |
| 12 | Lightning | 1 |
| TOTAL | | 70 |

TABLE XII

Analysis of the 74 suicidal (violent) deaths —

I Poisons —

| | | |
|----------------------|----|---------------------------|
| (1) Opium | 35 | (47.2% of total suicides) |
| (2) Morphine | 1 | |
| (3) White arsenic | 3 | |
| (4) Yellow arsenic | 4 | |
| (5) Cocaine | 1 | |
| (6) Carbolic acid | 3 | |
| (7) Nitric acid | 2 | |
| (8) Barium carbonate | 1 | |

• 50 (67.5% of all suicides)

| | | | |
|---|------------|----|-------------------------|
| 2 | Hanging | 14 | (18.9% of all suicides) |
| 3 | Drowning | 1 | |
| 4 | Gunshot | 4 | |
| 5 | Cut throat | 3 | |
| 6 | Burns | 2 | |
| | | 74 | |

The percentage of suicidal deaths to the total number of violent deaths for 1913 was 39.7

The total number of suicidal (violent) deaths in 1913 was in excess of that for 1912 (*i.e.* 74 against 57 only). The percentage ratio of the suicides by means of poisons to all suicidal deaths was 63.1 in 1912, and 67.5 in 1913, whilst that of suicides by means of opium alone to all suicidal deaths was 40.3 in 1912 and 47.2 in the year under review. Opium remains the chief means employed for self destruction, hanging coming second and accounting for 18.9% of all suicidal deaths.

TABLE XIII

I Opium suicides classified —

(a) According to sex—

| | | | |
|---------|----|----|--------------|
| Males | 28 | | |
| Females | 7 | { | Prostitute 1 |
| | | { | Others 6 |
| | | 35 | |

(b) According to age-periods—

| | | Males | Females |
|----------------------------|---|-------|---------|
| From 15 to 20 years of age | | 9 | 2 |
| " 20 to 25 " | " | 9 | 0 |
| " 25 to 30 " | " | 4 | 1 |
| " 30 to 35 " | " | 1 | 0 |
| " 35 to 40 " | " | 3 | 2 |
| " 40 to 45 " | " | 0 | 2 |
| " 45 to 50 " | " | 0 | 0 |
| " 50 to 55 " | " | 1 | 0 |
| " 55 to 60 " | " | 1 | 0 |
| | | 28 | 7=35 |

II Suicides by hanging classified —

(a) According to sex—

| | | | |
|---------|---|----|---------------|
| Males | 6 | | |
| Females | 8 | { | Prostitutes 2 |
| | | { | Others 6 |
| | | 14 | |

(b) According to age-periods—

| | | Males | Females |
|----------------------------|---|-------|---------|
| From 15 to 20 years of age | | 1 | 2 |
| " 20 to 25 " | " | 3 | 1 |
| " 25 to 30 " | " | 0 | 1 |
| " 30 to 35 " | " | 1 | 2 |
| " 35 to 40 " | " | 0 | 0 |
| " 40 to 45 " | " | 0 | 0 |
| " 45 to 50 " | " | 0 | 1 |
| " 50 to 55 " | " | 1 | 0 |
| " 55 to 60 " | " | 0 | 1 |
| | | 6 | 8=14 |

The greatest number of suicides by these methods were committed between the ages of 15 and 35 years. Opium accounted for four times as many deaths among males as among females, whereas hanging claimed about an equal number of victims from each sex.

TABLE XIV

The 74 cases of suicidal (violent) deaths classified according to race —

| | | |
|-----------|----|----------------------|
| Hindu | 60 | |
| Mahomedan | 7 | |
| European | 1 | (Gunshot) |
| Eurasian | 6 | { 2 Gunshot |
| | | { 3 Opium |
| | | { 1 Barium carbonate |
| TOTAL | | 74 |

TABLE XV

Analysis of the 18 homicidal (violent) deaths according to mode of occurrence —

| | | |
|-------|---------------|----|
| 1 | Stabbing | 1 |
| 2 | Blows, &c | 2 |
| 3 | Strangulation | 1 |
| 4 | "Lathi" blows | 5 |
| 5 | Gunshot | 4 |
| 6 | Cut throat | 5 |
| TOTAL | | 18 |

The only noticeable point about this table is that stabbing accounts for only 1 case this year, whereas during the last three years it accounted for the greatest number of homicidal deaths. Violent deaths by means of gunshot and cut throat wounds have increased, as will be seen by comparing the above figures with those given in the report for last years. Thus —

| | 1910 | 1911 | 1912 | 1913 |
|------------|------|------|------|------|
| Gunshot | 1 | 1 | 5 | 4 |
| Cut throat | 0 | 0 | 2 | 5 |

TABLE XVI

A certain number of cases of violent deaths are classified as "doubtful" in table X and these represent cases in which the Coroner's jury found it impossible, on the evidence adduced, to arrive at a definite conclusion as to whether the deaths were accidental, suicidal, or homicidal in their nature, and so left their verdict "open" on this point —

| | | |
|---|--------------------------------------|----|
| 1 | Poisons— | |
| | (1) Opium | 10 |
| | (2) Yellow arsenic | 1 |
| | (3) Hydrochloric acid | 1 |
| | (4) Narcotic poison (nature unknown) | 1 |
| 2 | Violence of a mechanical nature | 1 |
| 3 | Unknown | 2 |
| | TOTAL | 16 |

TABLE XVII

Of the 8 cases which were returned by the Coroner and his Jury as cases of death due to rashness and negligence (without criminal intent) the following is the analysis —

| | |
|-----------|---|
| Tram car | 2 |
| Carnage | 1 |
| Railway | 2 |
| Cycle | 1 |
| Motor car | 2 |
| TOTAL | 8 |

TABLE XVIII

The following are a few discoveries of interest from the point of view of pathology and morbid anatomy, made in the cases that came on the *post-mortem* table —

I Perforation and rupture of the internal organs due to violence alone —

| | Rupture | Perforation |
|------------------|---------|-------------|
| Liver | 5 | 1 |
| Liver and spleen | 4 | 0 |
| Spleen | 1 | 0 |
| Stomach | 0 | 1 |
| Intestine | 1 | 0 |
| Kidneys | 1 | 0 |
| Bladder | 1 | 0 |
| Uterus | 1 | 0 |
| Lungs | 1 | 2 |

II Perforation of large blood vessels due to disease alone and rupture of heart and large blood vessels due to violence with or without previous disease —

| | | |
|---------------------------|---|---|
| Pericardium | 1 | 0 |
| Right auricle of heart | 0 | 0 |
| Left " " | 0 | 0 |
| Left ventricle of heart | 0 | 0 |
| Right " " | 1 | 0 |
| Thoracic aorta 1st part | 0 | 0 |
| " " 2nd part | 0 | 0 |
| Heart in all its cavities | 1 | 0 |

III Disease of heart and blood vessels —

| | Endocarditis & Endarteritis | Atheroma | |
|------------------|-----------------------------------|-----------------|----------------------------|
| (a) Aortic valve | 0 | 44 | |
| Mitral valve | 0 | 0 | |
| Thoracic aorta | 0 | 45 | |
| Pulmonary artery | 0 | 1 | |
| Coronary artery | 0 | 1 | |
| | Aortic valve | Mitral valve | Thoracic aorta 1st part |
| (b) Stenosis | 0 | 0 | 0 |
| Vegetations | 0 | 0 | 0 |
| Ulceration | 0 | 0 | 0 |
| Aneurysm | 0 | 0 | 2 |

IV Abnormalities —

(a) In the way of disease, &c —

| | Liver | Spleen | Kidneys | Ovaries | Bladder |
|--------------------|-------------------|--------|---------|---------|---------|
| Abscess | 1 | 0 | 0 | 0 | 0 |
| Stone | 4 | 0 | 1 | 0 | 0 |
| | (in Gall Bladder) | | | | |
| Cirrhosis | 57 | 0 | 1 | 0 | 0 |
| Fatty degeneration | 3 | 0 | 0 | 0 | 0 |
| Cyst | 0 | 0 | 0 | 2 | 0 |
| Tumour | 0 | 0 | 0 | 0 | 0 |
| Cancer | 0 | 0 | 0 | 0 | 0 |

In the 281 cases examined *post-mortem* during the year, only 4 cases were found to contain calculi in the gall-bladder and biliary ducts, making a percentage of 1.4 only. There is a marked difference between these figures and those given for Europe and America as has been pointed out in the previous year's report. No explanation has so far been offered for the difference.

Accessory spleens were found in two cases, the accessory portions having all the characters of splenic tissue.

A very interesting case of acute yellow atrophy of the liver was discovered in a female, aged 35 years in January 1913. The tissues generally were intensely jaundiced. The liver weighed 25½ ounces. The presence of arsenic and phosphorus was negatived. The origin of the trouble could not be ascertained.

A case occurred of death from starvation also in January 1913, in a Hindu male of 25 years. The body was extremely emaciated, and the organs and tissues were wasted and anæmic but not otherwise diseased.

Another case of considerable interest was that of a Hindu male, aged 45 years, whose death in April 1913 was due to acute hæmorrhagic pancreatitis. Deceased while travelling in a

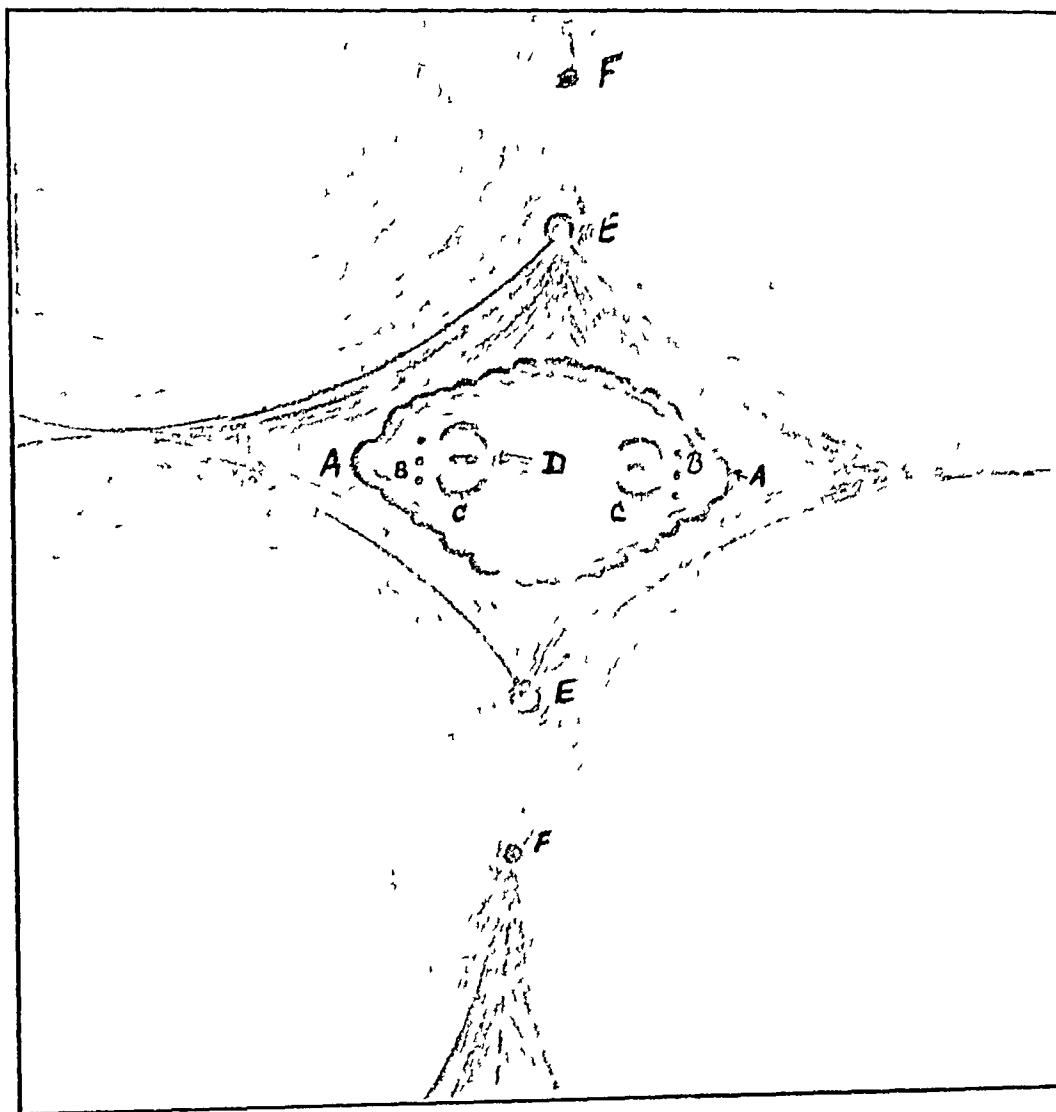
REPORT ON AN UNUSUAL CASE OF "SIAMESE" TWINS.

By C. W. O'BRIEN,
Military Assistant-Surgeon, Jubbulpore, C P



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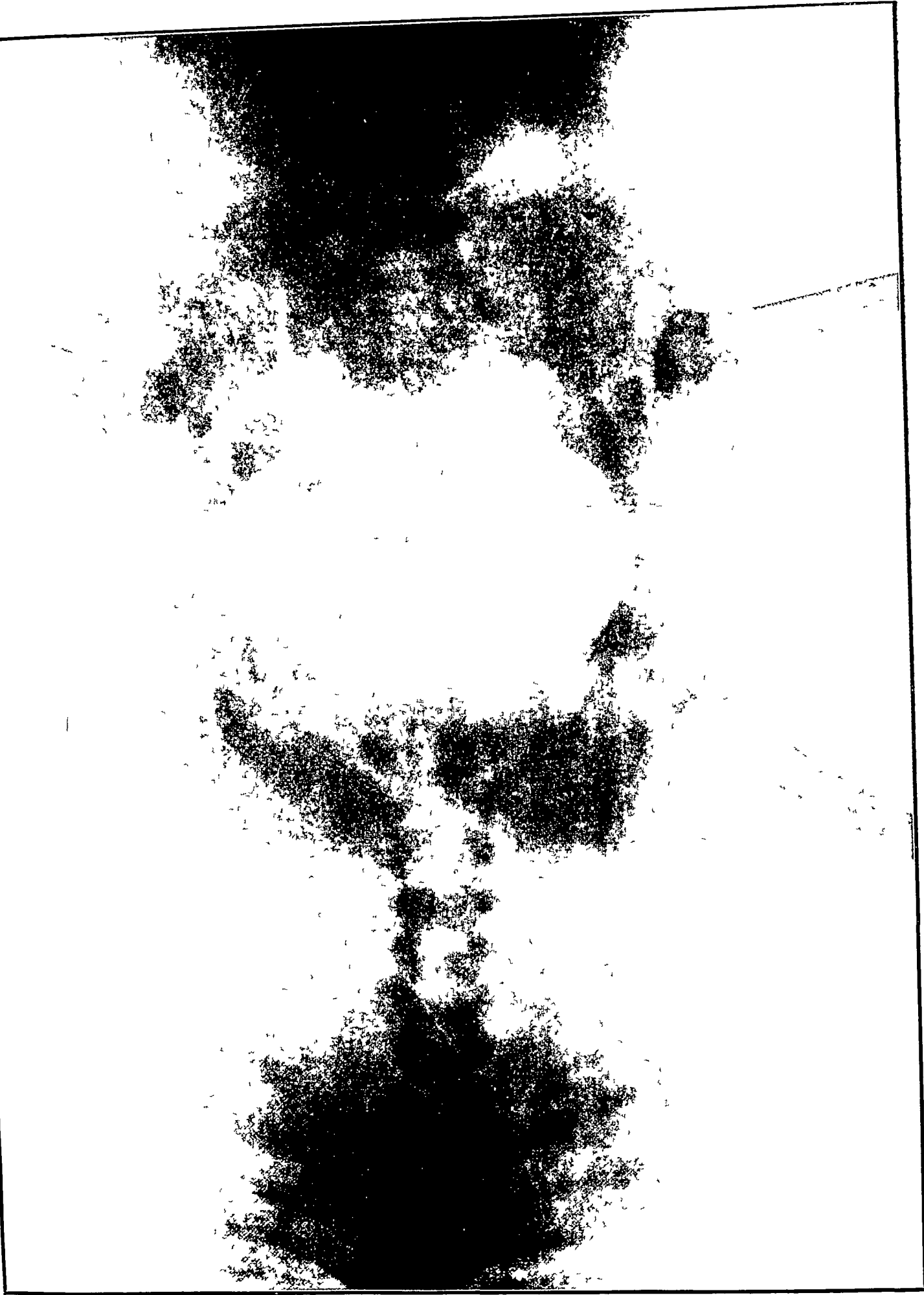
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- a* Rough edged structure minor? Labiora
- b* Tiny Nodules
- c* Meatus urinarius, on each side of which is noticed the flaps
- d* Bare area which looks like mucus membrane of sorts
- e* Anus
- f* Blind opening at point of coccyx

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tamway car took ill suddenly, vomited and purged, and died within a few minutes. On *post-mortem* examination an extensive extravasation of blood was found behind the peritonæum, extending down into the pelvis between the psoas and iliacus muscles. The blood vessels were found to be atheromatous.

During the year the Police Surgeoncy was filled by Major St John Moses, I.M.S., from 1st January to 31st March and by myself during the remaining period.

I have to acknowledge with thanks the help given me by my assistant, Babu Hem Chandra Das Gupta, both in the Morgue and in collecting the details for this report.

REPORT ON AN UNUSUAL CASE OF "SIAMESE" TWINS *

By C W O'BRIEN,

Military Assistant Surgeon, Jubbulpore, C P

THE twins are about ten months old, well nourished. They are joined together at a point corresponding to the pubis. The abdominal surface from each costal arch presents a perfectly level plane, with absolutely no sign of any external genitals.

They possess only one umbilicus, which is common to both. After birth only one placenta and one cord was noticed. Seen lying on their backs, they present an absolutely straight line. Each possesses a separate pelvis perfectly formed, except that there is no symphysis pubis. The pubic bones lie about 4 inches apart.

From the usual pelvic articulation the legs project. If each pair of legs is extended, the legs of either twin lie above those of the other and cross at the knee joints.

Each child possesses separate internal organs.

Both hearts lying in normal position, the apex beat in each case is heard loudest under the left nipple. The two livers are also normal in size and position.

The abdominal cavity is common to both. On slightly irritating the skin covering the abdomen, what is thought to be the peristaltic movements of the intestines are noticed and there is no line of demarcation between those on one side of the umbilicus and those on the other.

The recti muscles are not in contact but diverge outwards from their attachment at the costal arch, and continue this course beneath the integuments until each pair meets the other at the termination of an imaginary line drawn across the common umbilicus, thus leaving a diamond-shaped area between them.

On turning the infants over on to their stomachs, the sex is distinguishable, both being girls, the external genital organs are rudimentary.

On examination there is seen on each side a rough edged structure which occupies a position corresponding to, and looking very much like what would in a normal case be, the Labia Minora. Nearer the median plane are seen three tiny nodules corresponding to the position usually occupied by the clitoris. Median to this again is found the Meatus urinarius. This orifice is bounded on each side by a tiny flap. These points can be better understood from the drawing attached.

No vaginal opening is found, but there is a bare area looking like mucous membrane of sorts.

Unfortunately an examination per rectum could not be made at the time, and the question as to whether these twins possess internal generative organs must remain an open one for the present. The twins each possess a separate anus. The anal opening lies about $\frac{1}{4}$ of an inch away from the rudimentary vagina, and is in the normal position. Again about an inch away from each anus higher up the back is a small blind opening about $\frac{1}{8}$ of an inch in depth, which corresponds to the position of the tip of the coccyx.

Each child urinates and defecates independently of the other. They also move their limbs independently.

The bones of each child are well formed (except the pelvis already noted). The spinal column is perfect, no abnormal curvature noticed, and is strong enough to allow each child to arch itself easily on its head and buttocks. The features and shape of both heads are almost exactly alike. A slight prominence is noticed over each parietal bone, and is the same in both children.

Apparently they are distinguished by their ornaments.

Except for their deformity, both the children are happy and healthy. The mother nurses them both at the same time, one child is put to each breast.

Presentation —

The first child appeared at the vagina as an ordinary vertex, after the head was born, and while the shoulders were presenting, a pair of feet under the axillae of the first child were noticed.

The rest of the twins was born in the following order, taking the position from start to finish —

Head and shoulders of first child, feet of second child fixed under axillae of first child, then trunk

* [The above case here reported by Military Assistant-Surgeon O'Brien, was sent us by Major Stokes, the Sanitary Commissioner Central Provinces. The actual case is the same as one of the two referred to in our September issue, as seen by Lieutenant Colonel E. Dobson, I.M.S. (retd.), at a Railway Station.]

Colonel Denry, I.M.S., the Inspector General of Hospitals, saw the case while travelling by rail and he communicated with the Civil Surgeon of Jubbulpore, who instructed Assistant Surgeon O'Brien to draw up the note now published — Editor, I.M.G.]

common to both, feet of first child under armpits of second child, shoulders and head of second child

Apparently the twins were born in a perfectly straight line commencing with the head of one and ending with the head of the other

Labour lasted three days commencing at 8 A.M. the first day and ending about 6 P.M. on the 31st day

The mother about three years ago was delivered of a child with a hare-lip, which is still living, and about five years ago of a child which is apparently normal, and when last seen was in good health

Owing to the timidity of the parents, other interesting points could not be worked out, e.g., the giving of a Bismuth meal to one child with a view to seeing if the intestines were wholly separate

One end is called Janki. It is said to have been the first born. It wears a necklace as seen in the photo. The other end is called Gita

DEATH AFTER SALVARSAN

By A. NEVE, M.D. (Ed.),

Kashmir

It is important that all deaths should be reported, so I send the following details of a case —

M. A., Kashmiri Mahomedan, aged 20 years, had been treated for two months for neglected syphilis. Before that he had severe stomach symptoms, with hæmatemesis. At first under mercury he improved, but large patches of acute eczema with ulceration appeared, and then he developed mercurial glossitis, so I advised salvarsan. This was given on February 6th. A dose of 0.5 gram was administered intravenously, dissolved in the usual way, neutralised with sodium hydate, and diluted to 500 c.c. with normal salt solution, made with chemically pure sodium chloride, and freshly distilled water. There was no difficulty in the injection. Ten minims of a 1 per cent solution of cocaine had been injected at the site of the skin incision, and a blunt canula was put into the med-basilic vein. After an hour he was taken in a carriage to his own home. Arriving there he complained of much thirst, and drank a large quantity of cold water, but ate nothing. All night he was restless. Next morning he tried to vomit, and had hiccough. It is to be regretted that owing to the distance of his home and the snow on the roads, he was not seen by any doctor, and no observations of his pulse, etc., were made. He died at 2-30 P.M., 25 hours after the injection was given.

RIGHT SCROTAL FÆCAL FISTULA

By W. VOST,

LT COL., I.M.S.,

Civil Surgeon, Fyzabad

History — It was an ordinary case of reducible scrotal hernia of 2 years duration in a boy of 12 years of age. Nearly a month and a half before the operation, the hernia became swollen, irreducible and extremely painful, and the parents thought an abscess was forming, and treated it locally for the same. Then it burst, and left a fistulous opening through which faecal matter began to pour out. The boy's general health was fairly good and he was passing faeces both through the anus and the scrotal fistula. The fistula was a source of constant trouble, as the foul smelling faeces kept on coming in small quantities through it, soiling his clothes and legs. The fistula 1" long and $\frac{1}{2}$ " broad was situated at the front and lower part of the right half of the scrotum. Its edges were somewhat thickened and ulcerated, no pain, no discharge of pus. The whole scrotum was a little oedematous. The patient visited several dispensaries and other places but nowhere was anything done. On admission in the District Hospital he was given castor oil, and an enema one day before, and soap and water three hours before the operation. Nevertheless faeces came out when the patient strained under chloroform. He was directed to take no food for 18 hours before the operation.

Operation — The operation was performed on 4th October 1913 under chloroform. The skin was painted with Tincture of Iodine B.P. The ordinary hernial incision was made, and extended a little downwards. The sac was opened and the bowel was followed down to the fistulous opening and freed from the skin and the sac was separated and tied with silkworm gut at the internal ring and cut off. The bowel was clamped on each side of the fistula, thoroughly washed inside and out, and the opening in it and the scrotal wall trimmed of sloughy tissue. These rows of very fine silk continuous sutures were put in to close the opening in the caecal wall, and oozing of blood on removal of the clamps was stayed by pressure forceps, exposure to air and application of adrenalin solution (1 in 1000). Bassini's operation was done with silkworm gut to approximate the pillars and catgut to suture the skin. A single application of lint soaked in 1 in 2000 perchloride of mercury was sufficient to secure union by first intention.

Treatment — The patient made an uneventful recovery. There was no complication, no rise of temperature, and he was discharged quite cured on the 23rd October 1913, 19 days after the operation.

Indian Medical Gazette.

JANUARY

THE WAR AND THE SUPPLY OF DRUGS

THE European War has shown the world to what an absurd extent all nations were content to be dependent on Germany for the majority of drugs and chemicals in medicinal use. Even some so-called English manufacturers were content to depend on Germany for supplies of either manufactured chemicals or semi-refined qualities which were only finished and bottled in England.

At the commencement of the war the British Government at once prohibited the export of "all fine chemicals," as it was recognised that the stock in hand would be needed for the Army and Navy, and indeed the "panel" doctors were warned to be careful in their use of synthetic compounds.

British chemical firms will, no doubt, attempt to make many of the required drugs, but many are more or less 'secret,' and their preparations will involve a good deal of experiment, and in any case it will be difficult to compete with recent German prices in the case of drugs made from bye-products of other industries. It will be necessary to protect such British manufactures as will thus step into the breach when the war is over, otherwise on the revival of German manufactures they will again be swamped. In any case the price will be higher.

Other articles such as the Salts of Potash are largely a natural monopoly of Germany.

Several of the large houses in Calcutta (e.g., Messrs Smith, Stanistreet & Co., we are informed) have had considerable stocks of drugs in hand, and so far they have thus been able to avoid raising their prices up to actual present London quotations but such stocks must soon be exhausted and prices must necessarily go up. It is well worth for modern medical men to consider if too much reliance is not now placed on synthetic drugs with fancy names.

The latest or the most fashionable drug is not necessarily the best. It would not be a bad result of this terrible war if it drove medical men to drop the latest product of the enterprising manufacturing chemist, and to turn again to the old and well tried remedies many of vegetable

origin or to the numerous useful drugs indigenous to India.

The craze so common, at present, and especially with Indian practitioners, of thinking it necessary to prescribe only the latest drug or poison might well pass away, and our patients would seldom be any the worse off if the prescription of drugs was limited to those only which existed in the pharmacopœias of our grandfathers.

In conclusion, we may quote the following from our contemporary, *The Prescriber* (Oct., '14) —

"Not only have most of our synthetics come from Germany, but many other drugs owe an essential ingredient or raw material to the same source. A stoppage of the supply of bismuth metal has raised the price of bismuth salts, formaldehyde being unobtainable for the time being, compounds such as heximethylene tetramine are scarce, shortage of bromine has put a limit to the supply of bromides. There is little doubt that in time the enterprise of British and American manufacturers will get over the difficulty, but the fact remains that this shortage of supply is more far-reaching than at first sight appears.

It is essential at the present time that physicians should cease to prescribe synthetic remedies by their trade names. If the chemical equivalents be ordered, the pharmacist will be able to dispense a British-made article where such is obtainable, as most of them soon will be. The habit can soon be acquired and suitable names for foreign-made products may be found in the British Pharmaceutical Codex. Such products as are purely British may safely be left to the care of their manufacturers, who are making the fact known by strenuous and commendable advertisement. In the case of drugs dependent partly on foreign raw materials, a certain advance in price is unavoidable, but it is to be hoped that matters will eventually adjust themselves in this respect. The situation is one that calls for intense conservatism, a quality in the British nation which it is customary to deplore, but which will stand us in good stead in the present crisis."

THE NEW PORT HEALTH REGULATIONS, CALCUTTA

THE Government of Bengal in the Marine Department have published (dated 20th October 1914) a new and improved series of regulations in respect to infective diseases "occurring on vessels coming to or leaving the Presidency of Fort William in Bengal."

The diseases specially in view are small-pox, chicken-pox, measles, plague, cholera, yellow fever, sleeping-sickness, typhus, scarlet fever and jigger.

The Resolution is a comprehensive one and begins by definitions of such terms as "Health

Officer," "infected vessel," "suspected vessel," the term "infected" and "infected port"

The important feature of the new rules is the great increase in the discretionary power vested in the Port Health Officer

For example, "the removal of *sick* passengers bound for an onward port is not to be enforced unless under the clearest necessity of which the Health Officer shall be the judge" Again soiled linen and other articles belonging to the crew and passengers shall be disinfected if they are *in the opinion of the Health Officer* infected

Perhaps the most important of the new rules are those dealing with the possibility of the arrival of yellow fever cases, now all the more possible, if still unlikely, in view of the opening of the great Panama Canal It is understood that a yellow fever and Quarantine Station is to be established at Diamond Harbour The infected ship is to be anchored not less than half a mile from the land, patients "shall be protected from the approach of mosquitoes by means of curtains" Other passengers in perfect health may be landed, but must be kept "under close observation for a period of 8—12 days," special precautions being taken throughout the period "to prevent mosquitoes having access to them"

The ship shall be cleared of mosquitoes by the systematic "fumigation, under efficient supervision of every cabin, store-room, alleyway and hold" and sulphurous acid is recommended "as the best gas to use" Water on board must be protected from mosquitoes

Similar important and stringent precautions are ordered in cases of sleeping-sickness or of jigger

A useful appendix to the rules prescribes the use of disinfecting solutions, perchloride of mercury 1 in 1,000, 5 per cent carbolic, *fresh* lime-wash, &c

There can be no doubt that this new notification is a marked advance on previous ones, and removes several inconsistencies which have in practice arisen in the working of the older notifications

It will be noted that paragraph 19 (2) of the Notification implies the use of a hospital, and it is to be presumed that suitable accommodation will be provided at the proposed Quarantine Station near Diamond Harbour, and this hospital will presumably be available for cases of cholera and plague as well as for yellow fever.

We observe that the new rules contain no provision giving powers to the Health Officer for the destruction of bad food or for the abatement of any nuisance which might arise from decomposing food on boardship It is desirable that the Health Officer should have direct power to give orders for the destruction of such food, as, in his opinion, is unfit for human consumption This is one of the duties, we understand, of a Port Health Officer in British Ports

Another point needing attention is the provision of beds in some of the Calcutta hospitals for the reception of cases of the milder diseases, measles, chicken-pox, &c, which it may not be necessary or desirable to detain at Diamond Harbour

In this connection arrangements of a modern type are certainly needed for the prompt and comfortable removal of sick sailors or passengers from ships In the present day nothing less than a motor ambulance should be provided and kept ready

The publication of this important notification affords a good opportunity for taking up these questions and others with regard to the sanitary arrangements of the properties of the Port Commissioners, which in several respects are in need of improvement It seems to us that the simplest way to effect this is to make the Port Health Officer responsible and to give him the necessary powers to enforce an improved condition of sanitation among the large bodies of coolies and other employees of the Port Commissioners

It is very satisfactory to see that the Calcutta Port Commissioners and the Government are alive to the needs of this great port, and it is to be hoped that steps will soon be taken to remove the sanitary defects of the Port and its surroundings

Current Topics.

MALARIA IN THE PUNJAB

CAPT CLIFFORD A GILL, I M S, D P H, has published a very interesting report on malaria in the Punjab, together with an account of the work of the Punjab Malaria Bureau in 1913 We quote the following extracts —

The conclusion therefore may be reached that whilst endemic malaria prevails to a varying extent throughout the province, giving rise to an annual mortality, the

exact extent of which can only be approximately estimated, the disease periodically manifests itself in epidemic form, when it is attended by a greatly enhanced mortality, the extent of which may be gauged with a considerable degree of accuracy by measuring the excess over normal of the recorded fever mortality.

It is thus clear that malaria in the Punjab is a disease exercising a predominant influence over the well-being of its inhabitants. But the damage wrought by malaria cannot be measured from mortality bills alone, for even in years, such as the one under review, when no autumnal epidemic occurred, it causes a serious amount of sickness and ill-health, and perhaps more subtle of all, a loss of energy and initiative in the apparently healthy, which, though incapable of direct measurement, is of incalculable importance.

Finally, it is necessary to emphasise the fact, already alluded to, that malaria in the Punjab is subject to spontaneous fluctuations of considerable magnitude, so that a series of mild years may and often is followed by an outbreak of great severity. It would be out of place to discuss here the significance of this point, and it must suffice to state that it has recently been found possible to explain the reason for these periodic waves of increase and decrease in prevalence and violence. The point that it is chiefly desired to bring out here is the fact that these fluctuations are a normal feature in the epidemiology of malaria in this Province. The recognition of this circumstance is a matter of considerable importance, and it is obvious that it must always be taken into account when any opinion is being formed in regard to the effect of anti-malarial measures, for it will be readily understood that, if this point is not appreciated, wrong deductions may be made in regard to the value of these measures.

THE DISTRIBUTION OF ENDEMIC MALARIA

Malaria in the Punjab requires consideration in its aspect as an endemic disease and as an epidemic, and it is expedient, for reasons which need not be referred to here, that these two manifestations of the disease should be clearly distinguished from one another.

Malaria is endemic practically throughout all parts of the plains of the Punjab, whilst severe epidemics (fulminant malaria) occur only in certain years and in well-defined tracts. It may be said at once that the year under review was noteworthy as one in which epidemic malaria was entirely absent from the Province, and it thus affords a favourable opportunity for the study of the endemic disease.

Utilising the recorded fever mortality as the only index available of its prevalence, it is found that the malaria mortality for the Province as a whole was 331,698, which is equivalent to a death-rate of 17.15 per 1,000 of population. It is not considered necessary to compare the death-rate with that of previous years in the spontaneous manner in which the fever mortality is subject to fluctuation suggests that it would not serve any useful purpose to do so. The one point, however, that may be mentioned is the fact that during the five years that have elapsed since the severe 1908 epidemic the average annual fever mortality has been lower than in any other quinquennium during the past thirty years. This point is of some significance more particularly in view of the fact that public opinion is inclined to believe that malaria in the Punjab is on the increase as the result of canal irrigation.

There is, however, no reason to believe that this favourable state of affairs will continue indefinitely, on the contrary, reasons have been deduced elsewhere which go to show that this decline in malaria mortality is of a purely temporary nature, and that its maintenance can

only be anticipated to continue until the occurrence of the next exceptionally heavy monsoon.

Coming now to the distribution of this mortality both as regards time and place the monthly fever mortality for each district of the Punjab together with other details is given in the table in Appendix B (not reproduced—Ed.)

The mortality figures of districts taken as a whole, however, are open to the objection that they cover too wide an area, and it is proposed in future to utilise the *thana*, as suggested by Major Christophers, as the unit for the study of malaria in rural areas. But even the use of this unit is not altogether satisfactory since *thanas* sometimes comprise areas possessing physiological features of a widely varying nature.

A scrutiny of the table shows that the ratio of the fever mortality per 1,000 of population during 1913 was highest in the Karnal, Ambala and Rawal Pindi Districts where the figures were 24.8, 24.43 and 23.38, respectively, whilst in Muzaffargarh, Mianwali and Attock these ratios were 21.95, 20.68 and 19.86.

The districts showing the lowest fever death-rate were Simla (10.69), Montgomery (10.99), Ferozepore (11.05) and Ludhiana (11.92).

It is not, however, desirable to attempt to draw many conclusions from a consideration of the figures for one year only. The sole deduction which it is thought may be legitimately drawn from a scrutiny of the fever death-rates for the year 1913 is that the mortality from malaria tended in many cases to be higher in those districts which are not subject to severe epidemics as compared with districts containing the main "epidemic areas." This fact is demonstrated in the map attached to this report (Appendix C) in which the areas involved in the extensive 1908 epidemic are shown in red, whilst the fever mortality per 1,000 of population for each district has been entered in green. It should, however, be clearly understood that, during the year under review, there has been no epidemic of malaria in any part of the Province, and that five years have elapsed since the occurrence of the last epidemic.

It may therefore be tentatively concluded that the circumstances favouring a high degree of malarial endemicity are not solely those which favour the occurrence of fulminant epidemics. Conversely, the deduction may be made that in areas subject to these epidemics conditions exceptionally favourable to the endemic form of the disease are not necessarily present to a marked degree during epidemic free periods. As further observations, which support and extend these conclusions, have been embodied in a research which will shortly be published, it is unnecessary to make further reference to this subject here.

Finally, in Chart III the fever mortality during each month of the year under review is depicted (Chart not reproduced—Ed.)

A scrutiny of the chart shows that a slight decline in mortality took place in February as compared with the previous month, thereafter the fever mortality remained steady during March and April, but was followed by a slight but distinct rise during May. In June there is a decrease in mortality which is continued throughout July and August, with the result that the two latter months were the healthier from the point of view of malaria than any other months during the year. The chief feature of the chart, however, is the comparatively marked nature of the increase in fever mortality during the month of October, and its maintenance until the close of the year. For the present it must suffice to state that the above represents the monthly distribution of fever mortality in a year when endemic malaria was less conspicuous than usual and when epidemic malaria was almost entirely absent. For, until all the known factors influencing malaria have

been collected and studied over a series of years it will not be possible to draw final conclusions in regard to the year under review.

This report is therefore of *in ad interim* nature, and it must be regarded merely as indicating the lines on which more comprehensive reports will be based in future.

EPIDEMIC MALARIA IN 1913

There is fortunately little to be said in regard to epidemic malaria during the year under review, for, as has already been mentioned, no outbreak of fulminant malaria has taken place in the Province since the severe epidemic of 1908. In fact the sum of the fever mortality for the months of October and November for the past five years is only slightly in excess of the same figure for the year 1908.

GENERAL EFFECTS OF PROJECTILES

IN *The Military Surgeon* (October, 1914), M. O. Laurent summarises a very interesting article by M. Delorme read before the French Surgical Association and based on 11 months' surgical work in the Balkan War.

We make the following extracts —

"A knowledge of war surgery cannot be improvised any more than that of any other specialty, and if men of great reputation find it difficult to take up a specialty from one day to the next, it is not doing them any injustice to believe that they will have just as much trouble in this field which is just as diversified a specialty. The surgeon cannot look up his guides and make sure of his methods, read, listen and meditate at the moment of danger, he must have done all that beforehand. Many times eminent surgeons not knowing or being able to understand the real reasons why we have refrained from operation, because they did not know the external conditions we were subjected to, have tried to make their rules apply to our conditions and to perform operations where we had adopted an expectant treatment, which they considered almost criminal. They have had to abandon their attempts, and after unfortunate experience at the expense of the wounded soldiers, have had to acknowledge that they were mistaken. The most striking example of this difference is furnished in the domain of laparotomy. During the Transvaal War England sent several of her most eminent surgeons to the field of battle, the patients upon whom they performed laparotomy died in greater numbers than those that were not operated on. That was because one does not have the choice of conditions and hours for operation on the battlefield. Perforation of the abdomen by a small projectile from a long distance is less dangerous than one by a revolver bullet at close range and by adding a fresh tumourism to that already present the surgeon destroys by his operation salutary adhesions that have already been formed.

"This lesson should be remembered, it is based on the results of experience and study. And yet abstention from operation is bound to cause the surgeon in the war as well as in the rear many painful regrets, the former is apt to find himself under impossible conditions and see his attempts fail as in the Balkans, the latter can only fold his arms and protest, in cases that end fatally, that it might have been avoided in certain cases. Prof. Lejars was right in the work he published several months ago in studying the treatment of injuries of the abdomen by firearms he compared the practice in peace and war, that is, laparotomy in the one and abstention from operation in the other, and showed the insufficiency of the latter, which he regards as a last resort.

"The treatment of fractures of the long bones, which are so numerous and so complicated, also deserves careful attention. Should a cast or extension be applied? When and in what cases? How many soldiers have been crippled for the rest of their lives on account of a bandage badly applied, an incomplete reduction or a defective coaptation. Reduction of the two chief segments of the bone is not enough, but the coaptation of small fragments, or their mode of removal, sequestrectomy, are of great importance. These few examples show that the practice of military surgery demands experience and preliminary study. One cannot become a military surgeon at a moment's notice.

"*Number of Wounded* — Bulgaria had 4,300,000 inhabitants and 500,000 soldiers. In the first war the number of wounded was 53,000, of killed 30,000, in the second war there were about 16,000 killed and 62,000 wounded, or a total of 150,000 killed or wounded, one-third of those in action, or 3 per cent of the population. The deaths were one-twelfth of those in action, one-fourth of those wounded and 1 per cent of the population. This is a very high figure. Disease also claimed many victims. The mortality may be divided as follows: 75 per cent from wounds of the head, 35 to 40 per cent from injuries of the trunk, and 5 per cent from injuries of the limbs. The proportions were as follows according to the arms used: Gunshot injuries, 82 to 84 per cent; shrapnel, 15 to 17 per cent; sword injuries, 1 per cent. Average length of treatment for cutaneous wounds one to five weeks, for injuries to the soft parts four to six weeks, for fractures and joint wounds from nine weeks. There was infection in 40 per cent of the cases of injury by shrapnel and in 10 to 28 per cent of the injuries by bullets. About 75 per cent of the injured recovered without complications. Of course these figures vary according to the circumstances, depending on whether one is working at the front, in an ambulance at the rear, or in a hospital. And, moreover, each battle has its special surgical physiognomy. Bullets strike oftenest, grape-shot and musketry mow down the troops, in some cases shrapnel is the most deadly, the tilting of the fields and the property destroyed show the effects of shells.

"Delorme in measuring the other elements which influence the force of penetration of the bullet, found that the speed was the predominant factor. From the surgical point of view, the lesions produced by the bullet, attrition, comminution and abstraction from the tissues of the region traversed, are in general in proportion to its speed, the greater the speed, the more serious the lesions, in bones, the fractures are more comminuted. The less the speed the more circumscribed the lesions in the soft parts and the less comminuted the fractures of bone. Delorme arrives at the following conclusions. With the bullets at present in use, the new as well as the old types, with ranges from 0 up to 300, 400 or 500 meters, according to the kind of projectile, the injuries are very severe, showing the so-called explosive effects, with ranges of 400, 800 and 1,000 meters, the injuries are progressively less, and with increase in distance they decrease in severity till at 1,500 meters they are slight. There are four zones with respect to the severity of the injuries: explosive, perforating, simply wounding and contusive. But it is more accurate to designate the distance from which the shot was fired.

"*Cutaneous Orifices of the Bullets* — We have found different types. Erosion, which is simple scratching, furrowing, abrasion of the whole thickness of the skin, perforation, as if with a punch, splitting and laceration, an explosive variety. The bullet is traversing or simply penetrating, forming a cul-de-sac wound. In wounds at long range the orifices may be almost imperceptible, I have sometimes seen them 10 to 20 cm in diameter at short range.

Multiple Orifices—Several times in an onfilade we have seen four orifices in the neck and thorax. The ball entered, came out, re-entered and came out again. We have seen four orifices in the hand and the right thigh traversed simultaneously. We have seen six orifices, two in the right thigh, two in the scrotum and two in the left thigh.

Inclusion and Encystment of the Projectile—Retention of shrapnel is said to take place in one-fourth of the cases and of bullets in only one-tenth, but in 170 cases we found 22 per cent of inclusions, a very high figure. It is known that retention is more frequent in fractures. In these cases the bullet or shrapnel is lodged in a more or less comminuted focus, sometimes in a pulverized part. The bullet is found at a certain distance from the line of the fracture. Retention is frequent in shots from a long distance. The bed of the projectile may be absolutely aseptic, with no liquid, or it may be enclosed in a sero-hæmorrhagic cyst. We have seen quantities of unclean bullets, which may explain the epidemics of infected cases.

Direction of the Projectile—The course of the bullet may follow any diameter of the various regions of the body, a track from below upward is generally due to a ricocheted bullet. I have seen transverse injuries of the skull, injuries on a line between the carotids in the neck, of the breast and of the abdomen, without serious disturbance. But anterior-posterior injury of the skull is generally very serious.

THE SHARP-POINTED BULLET

STROMBERG in the *Woyenno Medicinski Journal* quoted by *Military Surgeon*, September 1914, has an interesting article on the sharp-pointed bullet used during the storming of Adrianople in the recent Bulgai-Turkish war. The new missile has a calibre of 7.9 mm, and is 27.8 mm long and weighs 10 grammes.

"For the second period Stromberg found ample material, and his conclusions are that the claims for the humaneness of the sharp-pointed missile are not justified. Thus at the eastern sector of the fort the Bulgarians admit 5,200 casualties. Of these 1,600 or about one-third were killed—a larger percentage than was observed in any of the large wars except the casualties of the French in 1854-55.

Taking up wounds of the head, the author reports only twenty-three cases, of which four died without operation. Twenty-three out of 300 wounded is a ratio entirely at variance with experiences in other wars, and while his position was close enough to enable the soldiers to reach him in about thirty-six hours after receipt of injury, he concludes that the percentage was indeed larger and made up by those killed or dying on the battlefield. The author saw only two segmental shots, the others were tangential, including those by shrapnel. On operation of the tangential shots the bones of the skull were found greatly shattered, many pieces driven into brain substance, and he saw deep fissures deviating laterally. Infection was widespread and many operations had to be undertaken for symptoms indicating beginning meningitis.

Face wounds were very destructive in character and in some hæmorrhage was so severe that the external and common carotids had to be ligated—in one case the lower jaw was simply torn off.

In wounds of the chest alongside of favourable cases he saw injuries with great destruction of ribs, scapula and sternum, pronounced pneumo-thorax rapidly ending fatally.

Wounds of the abdominal viscera proved very destructive, and gave an unusually high rate of mortality—over 65%.

In wounds of soft parts of the extremities he saw small wounds of entrance and unusually large wounds of exit.

He believes that the spitz-bullet is easily thrown out of balance and then acts almost as bad as a ricochet bullet, deformation of the missile has been observed.

It is interesting to note that charges had been made that the Turks resorted to deformation of bullets for the purpose of inflicting serious injuries. Stromberg visited the positions lost by the Turks and there found many cartridges left by the retreating soldiers. He found no such evidence. The relief troops, however, still used the old issue.

SANITATION OF MOFUSSIL BAZAARS *

WE are glad to see a third edition of this useful book. The new edition has been very largely re-written and has been brought up-to-date.

Few men have had more experience than Mr. Disney of the actual surroundings and conditions in an Indian bazaar up-country, and the book is therefore practical, moderate and eminently useful to Medical Officers, Engineers, and all Municipal Officers including members of Municipal and District Boards.

The book begins with a chapter on drainage which is still one of the matters in which municipal sanitation is most backward. There is an excellent chapter on water-supplies from wells, and what in India are called "tanks," the remarks in tank excavation are particularly good, and should be followed by every District Board.

There is a new and useful chapter on road-making, which throws much light on a subject of interest to all. To judge of the road-metal-ling so often seen in India, the only people who benefit are the contractors. Inferior metal is very common, and stones of equal grade and hardness are not used. For oiling roads, of which Calcutta has seen some wonderful experiments, Mr. Disney recommends a mixture composed of one part coal-tar to 20 parts of oil, mixed cold and sprinkled on by a watering cart and then brushed. Such oiling is laid to last for about two months and costs about one rupee per hundred square feet. MacCabe's "Tar macadam" used in Calcutta costs Rs. 2-2 per square yard and has a reputed life of three years. Full details of the preparation are given by Mr. Disney in an appendix.

The chapter on latrines and urinals is very practical and the rather expensive Bailey's patent and Donaldson's patent, both in themselves good, are recommended.

The method of removal of night-soil is a matter of prime importance, it is necessary still to use conservancy carts and Crawley's patent "nonclad" cannot easily be beaten.

There is an excellent account given of trenching and trenching-grounds, and the undoubted

* By G. W. Disney, Sanitary Engineer to Govt of East Bengal, and to Govt. of Bihar and Orissa, Calcutta. Thacker, Spink & Co., 1914. Price, Rs. 4.

drawbacks to both the jail and the Allahabad system are described. In jails, labour is available and trenching should be and is well done but this is not often the case in municipal trenching-grounds, which too often are a nuisance.

Mr Disney gives an account of various incinerators in use. He also refers, for further details on septic tanks, to Major Clemesha's standard book on the subject.

The tenth chapter deals with general bacterial sanitation, trees, tall crops, cultivation in urban limits, dhobies, markets and market-places, burning-ghats and burial places.

The appendices are extremely useful and practical, for example, model rules for latrines, removal of town sweepings, building regulations, projects for water-supplies, for macadam for roads, etc.

We can strongly recommend this little book. It is admirably adapted for the use of all concerned with Municipalities and District Boards in India.

THE TREATMENT OF TETANUS

IN no disease is the aphorism, "prevention is better than cure," so important as in tetanus, therefore anti-tetanic serum is very largely now being used on the battlefield, as has been the case for years past in all surface wounds in Calcutta and other parts of India. In the *Medical Chronicle*, September-October 1914, Dr Judson S Buty summarises some work done at Messrs Parke, Davis & Co's Research Laboratory as follows —

"The authors consider that the following conclusions are warranted —

1 Amputation after the appearance of symptoms is of no value.

2 The toxin appearing in the blood stream is self-limited even in the fatal cases.

3 There is little if any value in the carbolic acid treatment of the disease. If there is any gain, our opinion is that it is probably due to the sedative action of the drug and not to any direct action on the disease process, and that this result may be obtained with greater certainty by other drugs.

4 The magnesium sulphate as used in our experiments, subcutaneously, is of no value.

5 Antitetanic serum alone has a definite, although usually insufficient, curative effect.

6 It appears to us, from the observation of a large number of animals and quite a number of human beings dying of tetanus, that the exhaustion due to the muscular contractions is a large factor in producing fatal results. For this reason much of our work has been given to the attempt to hold these convulsions in check.

7 The presence of a large amount of toxin in the blood several days (in sheep it can be demonstrated four days) before the onset of clinical symptoms makes it imperative that a method be devised for easily determining this. With such a method it is quite probable that we could save a large proportion of our tetanus cases.

8 With our present knowledge of the subject the best that can be done in the treatment of tetanus is to neutralize the toxin with repeated doses of serum while controlling the muscular spasm with some such drug as chloretone."

THE KATHIAWAR MEDICAL SOCIETY

THE Society has now been in existence about eighteen months, and may be said to be firmly established. Regular meetings, at which papers are read and cases shown, are held at Rajkot every quarter, and the proceedings are printed and circulated to members. At these meetings particularly the attendance has been excellent, in some cases as many as twenty-five members having been present, but in addition to the quarterly meetings, for some time past subsidiary meetings have been held once a month, and these also have been well supported, though a good many of the members, being resident in distant places, are not able to come so frequently.

The progressive growth in the membership of the Society has been most encouraging, and the list now shows a total of fifty-three, who hail from all parts of the province. The library, on which about Rs 1,300 have been expended, and which includes a very fair selection of up-to-date medical works, is now installed in its new home at the West Hospital, where a good room will shortly be available for its exclusive use, and it is hoped shortly to start a small museum, for which funds have been presented.

Up to the present the post of President has been held by the Agency Surgeon, but it has always been recognized that it would be a mistake to rely entirely on any one official member, and this point of view has now been emphasized by the fact that the Agency Surgeon has recently been warned for reversion to military duty on account of the war. Under these circumstances it was fortunate that the Vice-President, Khan Bahadur Dr N K Kallhanwalla, was ready to take up the work, and it may confidently be expected that the Society will continue to prosper under his able guidance. The members in general, and more especially the committee, have shown such an active interest in the work that there need be no doubt as to its future even if it were permanently deprived of all official assistance.

OIL OF CHENOPODIUM IN TREATMENT OF ANKYLOSTOMIASIS

AMONG the many inconveniences entailed by Germany's ambition is the failure of the supply of drugs which other countries have carelessly allowed to be 'made in Germany'. Among these is thymol so largely used for years past in India and more recently on a very large scale in the Southern United States in the campaign against the hookworm disease better known in India as Ankylostomiasis. In America the use of Oleum Chenopodii (U S P) has been proposed as a substitute for thymol, beta naphthol, etc. As indicated by its common name American wormseed has long had a reputation as an anthelmintic. It is said to have been used by the native Indians before the arrival of Columbus, and the plant from which the oil is distilled

grows in waste places all over the States, indeed in Florida it is a pestilent plant, so common is the weed

Clinically the value of the oil for the treatment of round worms is established. Two writers in 1912 at the 15th International Congress sought to demonstrate the advantage of this oil, which they had used in 1,457 cases giving eucalyptus a coefficient of 38, naphthol of 68, thymol of 83, chenopodium oil was given 91 which surpasses all the others. Like many other anthelmintics it is poisonous in excessive doses.

"It is to be noted that oil of chenopodium is a paralyzant, rather than a parasiticide. It narcotizes the parasite, which must then be got rid of by free purgation. Moreover, and here it differs radically from aspidium and thymol, it is probably best administered with castor oil. In the case of aspidium and thymol the coincident or subsequent use of any oil is to be avoided, because, their constituents being soluble in oils, they are thereby rendered more toxic to the human subject. With reference to chenopodium, which in itself appears to be constipating, the castor oil does not add to its toxicity, but offers a ready method of ridding the host both of the parasites and the drug."

"Schuffner and Veervoort administered 16 drops of oil of chenopodium with sugar every two hours for three doses. Two hours thereafter they gave a tablespoonful of castor oil with a teaspoonful of chloroform. Gockel gives the single dose as 8 to 16 drops, according to age—6 to 8 years, 8 drops, 9 to 10 years, 10 drops, 11 to 16 years, 12 drops, over 16 years, 12 to 16 drops. Should untoward symptoms arise, particularly inordinate sleepiness or depression, the chenopodium should be withdrawn at once, active purgation induced, and stimulation begun with strong hot coffee by the mouth or by the rectum."

The *Extra Pharmacopœia* (14th Ed, p 700) gives the average dose as three minims, but ten minims for use against round worms.

We have more than once directed our reader's attention to the grave risks run by the use of tuberculin by ordinary practitioners who cannot claim to be specialists or even to have had any modern and special training in technique. We recently quoted the views of Dr Bardswell of the King Edward VII Sanatorium at Midhurst.

The report (1913) of this Sanatorium is now severely criticised by Dr W Camac Wilkinson, Director of the Tuberculin Dispensary in Kensington Road, S. E. Dr Camac Wilkinson is recognised as an expert *par excellence* in the use of tuberculin, but his criticism only strengthens us in our view of the dangers of tuberculin in ordinary hands. We note that Dr Wilkinson also considers the admitted failure of tuberculin to be one to timidity and to giving too small doses. He believes in an "intensive method" and claims "very extraordinary results." Quite so, but we hope the ordinary practitioner will avoid this dangerous remedy.

TO RENDER FINGER PRINTS VISIBLE—More than twenty-one different methods for this purpose have been devised, but Maestre and Lecha-Marzo call attention

to the superior value of zinc oxide to show up a finger print on a black background. For prints on paper, glass, etc., they recommend a mixture of iodine and eosin, heated until it vaporizes. The violet vapor then applied to the finger print brings out the lines very distinctly and permanently enough for the purpose. On paper, platinum black is even better. It has revealed finger prints not detectable by any other means in several criminal cases in their experience. Before anything is applied, the supposed finger print is photographed under oblique illumination.

The *Prescriber* gives the following tip for conversion of Centigrade into Fahrenheit degrees on the thermometer which may be found useful—

We have always found comfort and help from the following rhyme

"S thirty-two M five D nine,
Neath Centigrade then draw the line."

This means subtract 32, multiply by 5, and divide by 9, and the answer is Centigrade. For conversion the other way

"M nine D five plus 32,
And Fahrenheit appears in view."

Reviews

Practical Tropical Sanitation—By W ALFRED MUIRHEAD. London John Murray. Price, 10s. 6d net.

THIS is as it purports to be an eminently practical book, and one of the best we have seen on the subject of tropical sanitation. It is specially written for Sanitary Inspectors, but can be read with profit and pleasure by medical men.

It deals with all the ordinary subjects of a book on sanitation, causes of diseases, mosquitoes, tropical diseases, disinfection, air and ventilation, food, water-supplies, disposal of refuse, etc., and sanitary law.

The book is clearly and simply written, and admirably and fully illustrated.

The chapter on disinfection struck us as very good and the various means of purifying water are well described. There is a very useful appendix containing numerous tables.

We can strongly recommend this book, and we know of no book on sanitation so thoroughly adapted to the needs of Sanitary Inspectors in the tropics. It would suit admirably as an examination text-book.

Abdominal Surgery, Clinical Lectures for Students and Physicians.—By THORILD ROVSING. Edited by PAUL MONROE PILCHER, A.M., M.D. Pp 471. Philadelphia and London J B Lippincott Company. Price, Rs. 15-12.

THE scope of this book hardly warrants the use of a comprehensive title implying that the whole field of abdominal surgery is covered in this series of clinical lectures. Out of twenty-five lectures, five deal with general topics, three with certain diseases of the liver and the remaining seventeen with diseases of the stomach and œsophagus amenable to surgical treatment. The

author is Professor of Clinical Surgery at the University of Copenhagen, and is well-known for his brilliant and original work in this department of surgery.

The book is not a systematic treatise on diseases of the stomach, but is addressed to advanced students, and the author presents his own ideas and results of his work in several respects strikingly original. The clinical lecture is peculiarly suitable for this purpose, as, to use the author's own words, "in the clinical lecture we have the personal element of the teacher considering a given case, and the reader lives through and works out further with the author every step in the diagnosis of a specific case and considers with him the therapeutic questions and difficulties."

After an introductory lecture on the general principles of diagnosis, the author proceeds to give in the next two chapters an interesting account of the development of antiseptic methods in the surgical wards of his own hospitals. Silver nitrate is the antiseptic to which the author pins his faith, using gauze impregnated with a 1%–2% solution of this drug for all purposes, and claiming by its use to be able to produce a reliable sterile catgut which gets stronger with long storage in the solutions. This method would seem to be well worthy of trial. Heile's researches on iodoform are mentioned, but the author is unsparing in his condemnation of the use of this drug under any circumstances. Then follow two chapters on anaesthetics and we note that, unlike most continental surgeons, the author advocates general anaesthesia with ether and regards with disfavour the performance of major operations under local anaesthesia. Spinal anaesthesia he condemns *in toto*.

Next come three lectures on diseases of the oesophagus, and the author describes his method of performing gastrostomy with the aid of Pezzer's catheter, which seems to be ideally simple and deserving of wide adoption.

The next lecture deals with the diagnosis of diseases of the stomach, and Professor Rovsing describes his ingenious method of "direct duodeno-gastros-copy" and "diaphanoscopy." This method consists in viewing the interior of the stomach by means of a special lamp constructed on the principle of the cystoscope and introduced through an incision in the wall of the exposed stomach, by then inflating the stomach with air and darkening the operating theatre it is possible to see ulcers, thickenings, new growths, etc., as shadows in the trans-illuminated stomach wall.

We then pass to three lectures on gastroptosis, and here we find Professor Rovsing an advocate of the view that in many cases gastroptosis exists unaccompanied by any other ptosis, is caused solely by tight lacing and is curable by his operation of gastropexy, combined with colopexy where necessary. His teaching is here opposed to current English views, but his statistics of results in 256 cases thus treated are remarkably favourable, 63 per cent. cured or much improved

by operation contrasts strikingly with the usual unsatisfactory results of treatment of enteroptosis.

The next eight lectures deal with gastric ulcer and its sequelae as illustrated by different types of case. Cancer of the stomach is rather too briefly dealt with, and is followed by an interesting lecture on regurgitant vomiting and peptic ulcer of the jejunum after gastro-enterostomy, we are surprised to see no reference in this connection to the modern posterior no loop operation.

The lecture on liver abscess is inadequate and out of date, aspiration is condemned, and there is no mention of quinine injection, the emetine treatment had evidently not come into use at the time this lecture was delivered.

We have read these lectures with great interest and can recommend the book to surgeons interested in this subject. The translation is well done, and the printing and binding are all that could be desired.

A Manual of Physiology, with Practical Exercises.—By G. N. STEWART, M.A., D.Sc., M.D. Edin., D.P.H. Cantab, Professor of Experimental Medicine in Western Reserve University. Coloured Plate and 467 Illustrations. Seventh Edition. Demy octavo, pages XXIV and 1132. Price 18/- net. Publishers Messrs Baillière, Tindall and Cox, London, 1914.

EVER since the appearance of the first edition of this important work in 1896, it has proved itself a favourite with both teachers and students. Seven new editions and reprints have been needed to satisfy the demand in the last 18 years. This is due to two factors, the very high standard of the material treatment of the subject attained by Professor Stewart, and to the fact that it is the only work on Physiology containing practical exercises, and therefore a most useful book for teaching purposes.

The present edition has been thoroughly revised, many sections have been entirely re-written and new ones added, also there are more than 100 new illustrations.

Praise of this volume is uncalled for, as it is so well-known and so much read by all students and medical men in India that public opinion has already gone much in its favour. Our own opinion has been expressed in reviewing previous editions which we have no hesitation in repeating we consider it one of the very best books written on Physiology and have much pleasure in recommending it to all who wish to keep in touch with physiological advances.

Messrs Baillière, Tindall and Cox are to be congratulated on the publication of a really fine work in a manner worthy of themselves and their author.

Physiological Principles in Treatment.—By W. LANGDON BROWN, M.A., M.D. Cantab., F.R.C.P. Third Edition, Crown octavo, pages VIII and 408. Price 5/- net. Publishers Messrs Baillière, Tindall & Cox, London, 1914.

THIS is the third edition of this important little volume we have had the pleasure and profit

of reviewing, and we may say without hesitation that it is a book no medical man, physician or surgeon who has the least claims to a knowledge of the advances made in scientific treatment of disease can afford to be without. The volume has been thoroughly revised and re-arranged, and additional new matter introduced. The subjects discussed from a modern standpoint are fourteen in number, and are treated in a way that gives one a real insight into the application of physiological knowledge to the proper understanding and treatment of disease. We have read these articles with the very greatest pleasure and considerable profit to ourselves, and we look forward to the time when Dr. Langdon Brown will have the opportunity of expanding his volume and treating the present matter and many others in a more detailed manner. As would be expected the publishers have done their part well and have produced a handsome little volume.

Dietetics or Food in Health and Disease—By WILLIAM TIBBLES, LL.D., M.D. Author of "Foods, their Origin, Manufacture and Composition," "Diet in Dyspepsia," "The Theory of Ions," etc. Demy octavo, pages X and 627. Price, 12/6 net. Publishers Messrs. Baillière, Tindall & Cox, London, 1914.

THE author in adding yet another to the numerous books on dietetics has set himself no light task. He has had to compete in a field that has already been well supplied with works of great merit. We may say at once that in our opinion he has placed himself and his book in the very forefront. The author lays great stress and attaches great importance to the treatment of disease from a dietetic standpoint. In this we are in full accord with him. We certainly consider that it is a subject that requires a good deal more accentuation in the students' curriculum than it obtains at the present time. In our own experience the benefits to be derived from a suitable regimen in many forms of ill-health are manifold and sometimes most striking. But until the cause of the underlying condition is properly understood, it is not of much service arranging diets in a more or less empirical manner. That is just wherein lies the value of a volume of the description under review. It is sufficiently large to give all that is necessary for the carrying out of the rational indication, and the following of those indications, in an intelligent manner by the physician. We welcome the chapters more particularly on the diseases of the stomach, intestines and urinary system, also the last chapter on vitamins and deficiency diseases is very good. Altogether this volume is a most important addition to the treatment of disease from the dietetic standpoint, and the author, who has already written several works of an allied nature, is to be congratulated on the success that has attended him on his latest production. The publishers have spared neither trouble nor expense and have succeeded in producing a really admirable volume.

Syphilology and Venereal Disease.—By C. F. MARSHALL, M.D., M.Sc., F.R.C.S. Third Edition. Demy octavo. Pages X and 465. Price 10/6 net. Messrs. Baillière, Tindall & Cox, London, 1914.

THIS is a thoroughly revised and largely re-written edition of Marshall's well-known popular work on venereal diseases. The author in his first edition some seven years ago laid great stress on the importance of venereal disease as an ætiological factor in the causation of many seemingly distinct conditions. The flux of time and the benefits of research have gone far to justify the views he put forward. The whole aspect of syphilology has changed since the discovery of the pathogenic organism by Schaudinn and Hoffmann in 1905, and the introduction of the salvarsan treatment a few years later. This volume gives a very full, complete and up-to-date statement of our knowledge of the subject in the light of these discoveries and with regard to the so-called "Parasyphilitic diseases," in the light of Noguchi's isolation of the *Treponema pallidum* from the nervous system. We can very heartily recommend this book to all who are interested in venereal diseases—a subject concerning which it is difficult to over-estimate the importance.

As might be expected the publishers have turned out a very fine volume, well printed on good paper and in clear type.

A Text Book of Medical Diagnosis—By JAMES M. ANDERS, M.D., LL.D., PH.D., etc., and L. NAPOLEON BOSTON, A.M., M.D. Second Edition. 500 Illustrations, some of them in colours. Publishers Messrs. W. B. Saunders Co., Philadelphia, London, 1914.

THIS well-known volume on medical diagnosis has been very thoroughly revised. The work of revision extending over a period of two years. The authors have made every effort to bring this edition abreast with our clinical and laboratory methods of diagnosis. To this end several important additions to the subjects treated have been made, such as, electrocardiograms, new work on the rhythm of the heart, movements of the two valves of the chest, albuminous sputum, cobra-venom, reaction in syphilis, relapsing fever, drug eruptions, initial eruptions in measles and many more too numerous to mention. In addition clinical tables have been given on bloody sputum, dyspnoea, abdominal enlargement, vomiting, ascitis, hæmaturia, bacteriuria, etc. The articles on Stokes Adams disease, blood pressure, ulceration of duodenum, Addison's disease and anterior poliomyelitis have been re-written.

As indicated by the above matter this is a most exhaustive volume on the subject of clinical and medical diagnosis, and the authors are most heartily to be congratulated on their efforts to provide a clear and complete account of the present state of knowledge regarding the methods made use of. The illustrations are very good.

and assist in the interpretation of the text to a very great extent. We were disappointed not to find any reference to Joulie's tests in a volume so exhaustive of its subject. It is a book that can be whole heartedly recommended to the profession in general and to all engaged in accurate clinical research in particular.

The publishers have been most successful in putting on the market a volume of which Saunders Co. may well feel proud.

ANNUAL REPORTS

BOMBAY HEALTH OFFICER'S REPORT

DR TURNER, the Executive Health Officer of Bombay City, has issued his Report for 1913, dated 17th April, 1914, but it only reached our table in August.

The report is so complete and is such an accumulation of facts and figures as to make it difficult to adequately review it, we must be content with making some extracts on matters of permanent interest while commending our readers to see and read the full report for themselves.

The total death-rate (32.17) is the lowest since plague began in 1896, plague itself was nearly as low as in 1912, the tuberculosis rate was lowest recorded, and even infantile mortality was the lowest since 1896. The birth-rate is put at 20.05 per 1,000 of the population.

"Besides the factors which influence in common the birth rate of every community, there are some peculiar to this city—(1) the fairly well established custom of sending prospective mothers home to their parents, where the baby has a better chance of life—so that there is in the city a number of children of mothers belonging to but born outside the city and therefore not registered, (2) the omission of parents or relatives to register births, through ignorance or neglect—so that there is a considerable number of children who have escaped registration."

There is a good account of the efforts being made to reduce infantile mortality.

On the subject of **Plague mortality** the following note is of interest—

"The progressive decline in the mortality from plague, which distinguished the quinquennium of 1906-1910, closing as it did with the lowest figure then on record (3,656), was interrupted by an increase of 350 deaths during 1911. But 1912 returned a plague mortality (1,717) far below even that of 1910. It constitutes a record year, for in 1913 an increase of 892 was registered, the mortality (2,609) giving the death rate of 2.66 per 1,000 of the population. It must, however, be noted in favour of the year under report that, although the number of attacks and deaths from plague was higher than in 1912, it was lower than in any other year since the first outbreak of the disease in 1896.

In my previous reports, I observed that in spite of the enormous and steady shrinkage of plague mortality, indicating the effective control under which the disease had been brought, a corresponding abatement in virulence had not been possible. For example, in 1912 which witnessed the lowest plague mortality on record, the case mortality was 88.68, next only to that of the

most fatal years in the history of the disease 1901 (89.19) and 1903 (89.05), when 59,495 and 50,513 deaths were registered. In 1913, however, there was a very perceptible reduction in case mortality—86.30, the lowest since 1902 (84.15) which recorded 48,414 deaths from all causes and 13,820 from Plague. This is a notable feature of the epidemic of the year."

There are also admirable reports giving details of anti-malarial, anti-plague, etc., work in the City, but they are long to quote and difficult to abstract. Special action was taken with regard to wells and cisterns to prevent mosquito breeding. The report on the value of *Esanophele* is hardly conclusive. Dengue was prevalent.

The report of the Analytical Department is full of interest and shows how much is being done in the examination of food-stuffs, water-supplies, drugs, etc., etc. The following extract from the report on **Milk** is worth quoting.

To sum up, the enumeration of microbes per c.c. in milk serves as an index to its (1) age (2) temperature at which it was held, and (3) the cleanliness of the methods employed in its collection, etc. A favourable combination of all these three factors will result in an excessive multiplication of the bacteria present.

As regards the presence of *lactose fermenting organisms* in Bombay milk, a comparison may be made between the figures in Table "IV" and those in Table "VII". In the former case only 12.5 per cent samples showed lactose fermenters in 0.000001 c.c. and more of milk, while in the latter case, the percentage of samples showing lactose fermenters in the same dilution was 71.6 or nearly six times as much. In the former B. coli like organisms were found in 34.4 per cent of the samples, while in the latter 94.5 per cent. The presence of organisms of the B. coli group in such large numbers indicates pollution with cowdung, etc. This is not at all astonishing, when one remembers the filthy condition of the stables where milking is carried on. Out of the samples of milk collected with the strictest sanitary precautions, not one showed any "fecal bacilli." This taken together with the results tabulated in Tables "IV" and "VII" would indicate that the presence and number of lactose fermenting organisms of the B. coli type in milk depend mostly on the amount of cleanliness observed in milking, transporting, etc. The figures for milk of Class III (Table "VII") show an appalling amount of manurial and other undesirable pollution of Bombay milk as is ordinarily found in the local market, dairies, milk-shops, etc.

The value of bacteriological examination of milk in India cannot be denied in the light of the above results. Chemical examination is no doubt important, as it gives us information as to whether a sample of milk is genuine or not, that is whether it is "watered" or otherwise. If clean and pure water be added, it would not be directly injurious to health. If, however, a sample of milk shows a very high count of bacteria, most of which are of fecal origin, or the presence of a pathogenic microbe, then its bearing on health is quite evident. Again a sample of milk may be quite genuine from a chemical point of view, but very objectionable from a bacteriological standpoint.

Tuberculosis—The only question remaining to be considered now is, *are tubercle bacilli conveyed by milk in India?*

There are hardly any statistics available in India with regard to the prevalence of tuberculosis in milch cattle. No systematic investigation seems to have been made as yet, but judging from the reports of the Chief Veterinary Inspector of Bombay and others, it appears that Indian cattle rarely suffer from tuberculosis. If this is so, it may be partly ascribed to the fact that in India, cattle are allowed to graze out in the open all the year round.

(excepting in large cities) and live an outdoor life to a great extent than in England or in America

Tubercle Bacilli in Milk—The following figures will show the frequency with which Tubercle bacilli have been found in milk in English and American Cities —

| Cities | No of samples examined | Percentage containing Tubercle bacilli | Investigator or Authority |
|-------------------|------------------------|--|---------------------------|
| London (1908) | | 11.6 | William G. Savage |
| Manchester (1908) | | 8.28 | William G. Savage |
| New York (1910) | 107 | 16.0 | Hess |
| Chicago (1910) | 144 | 10.5 | Tonney |
| Washington (1906) | 233 | 6.7 | Anderson |

A systematic examination of Bombay milk for B. Tuberculosis was made by me during four years (1910-1913 inclusive). The total number of the samples examined were 741. Forty-eight samples or 6.49 showed the presence of *Acid fat bacilli* but in not a single sample tubercle bacilli could be demonstrated by animal experiments. These results have been confirmed independently by those at the Bombay Bacteriological Laboratory, Parel, where 100 samples of cow's milk were recently examined for tubercle bacilli, but in no instance did the guinea-pigs develop Tuberculosis. Further investigation in other cities of India is necessary before drawing final conclusions, but so far as our present knowledge goes, it may be concluded that in India tubercle bacilli are rarely, if at all, conveyed by milk.

This is a most important pronouncement. It is clear that Tuberculosis of the lungs is mainly spread by the sputum and is festered by overcrowding and other sanitary defects of crowded life in big cities.

Genuine milk may be bought in Bombay for 4 annas a seer (=24 ozs). At 3 annas per seer only 42.4 per cent or considerably less than half the samples have been found to be genuine, at 2½ annas per seer a very small proportion (16.7 per cent) was found to be genuine and hence there is very little likelihood of getting genuine milk at this rate, whereas at 2 annas per seer it is impossible to get genuine milk in Bombay.

MILK STANDARDS FOR INDIA

From what has been said above regarding the difference in composition, etc., between milk in India and milk in Europe and America, it is quite evident that European or American Standards for milk cannot hold good for India. We shall first consider the *Chemical Standard*.

The following standard is based on the analytical results of several hundred samples of genuine milk, obtained from different breeds of animals and collected under the most varying conditions. For a routine examination, the figures for fat and "Solids, not fat" are all that is necessary to form an opinion about the genuineness of any milk sample.

Proposed Milk Standard for India (Chemical)

| | FAT PER CENT | | SOLIDS, NOT FAT, PER CENT | |
|-----------------|--------------|--------------|---------------------------|--------------|
| | Average | Lowest limit | Average | Lowest limit |
| Buffaloes' Milk | 6 to 7 | 5 | 9.5 | 9 |
| Cows' Milk | 4 to 5 | 3.5 | 9 | 8.5 |

BACTERIAL STANDARD

The practical importance of a routine bacteriological examination of milk has been already emphasized. The first attempt to adopt a bacterial standard was made by the New York Board of Health in 1900. According to this, no milk was allowed to be sold in New York, which contained over 1,000,000 bacteria per c.c. This had to be considerably modified later. Boston has a *legal standard* of 500,000 microbes per c.c. According to Rosenau, the number of bacteria per c.c. in milk should never exceed 100,000. It must be remembered that conditions in America are quite different from those obtained in India, and if a standard is to be adopted for India, this should be done with due regard particularly to (1) local conditions of collection and distribution of milk, (2) *temperature* at which the milk is held, and (3) *time* elapsing between milking and consumption. In the United States of America the authorities insist on the milk-sellers keeping their milk at a temperature not exceeding 50° F. This is impossible in India for obvious reasons. Further research is necessary before setting up a fixed bacterial standard for India. In the meantime, in the light of the foregoing results, it is suggested that a *tentative standard* of 5,000,000 microbes per c.c. may be adopted as a guide for administrative work.

A word may now be said regarding ADULTERATION OF MILK IN BOMBAY. It is a notorious fact that the extent of adulteration of milk in Indian cities is far more than in European or American cities. Out of a total of 1,363 samples of milk examined at the Bombay Municipal Laboratory, during a period of five years, only 282 were found to be *genuine*. This gives 1,081 or 79.3 per cent for *adulterated* or watered samples of milk in Bombay. In Poona, Dr. H. H. Mann found 80 per cent. of the milk to be adulterated with water.

The following note is worthy of extract —

"As in previous years, the ten Municipal Nurses and Midwives carried on their campaign against infant mortality and the causes responsible for it. The work done by them during the year has already been reviewed under several heads. Their collective activity can to some extent be measured from the total domestic visits they paid and the inquiries they made. During 1913 they paid 33,791 visits to houses, chawls, and huts, enquired into 4,326 cases of ordinary sickness, 1,284 cases of Infectious Diseases, and 1,608 deaths amongst the female population of the city, attended 1,200 confinements and ascertained 9,044 births. They also gave homely talks and advice on personal and domestic hygiene and on the care and upbringing of infants and on the saving power of vaccination. Their duties, it will thus be seen, demand not only energy but also sympathy and tact and discretion. From the foregoing record of their work, combined with the obvious interest they take in it, there can be little doubt that their friendly and benevolent visits are greatly appreciated and have been productive of good which it is impossible to over estimate."

Here is a practical point —

"As regards wire gauze, 'Christies' Oxidized Phosphor-bronze mosquito gauze,' thick and of 16 meshes to a running inch, has been strongly recommended, as it is 'strongest, most durable, and outlasts many renewals of any other quality.' A local firm of plumbers has obtained a supply and this is now recommended in all cases."

The above extracts will give our readers an idea of the vast amount of useful and interesting matters discussed in Dr. Turner's Report.

Correspondence

THE HOSPITAL SHIP MADRAS *

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—Now that we have had three days at sea and the preliminary sea sickness of the wardboys, students, and cooks is over, and we have got to our duties, preparatory to arriving in six days time at our port of destination ready in every detail to take in sick and wounded I am beginning to find time to write to you the description of the *H S Madras*.

The B I S N Co's twin screw ship *Tanda* is nearly a new ship having only just come from her maiden voyage to Japan. She arrived in the Madras Harbour on 10th October, 1914, empty, except that the holds were full of Japanese coal. She was taken over by the Madras War Fund on 14th October, 1914, and left the Madras Harbour fully equipped in every detail with 300 Navy pattern swinging cots (made by Messrs Oakes and Co., Beehive Foundry, Madras), and with accommodation for 80 more beds, on mattresses in the lower decks—20 cots for native officers and 6 cabins for European Officers. She is intended as a Hospital Ship for the Indian Army only, and carries food, equipment and attendants for sepoys only. If, in the course of our voyages we are asked to carry British soldiers, we shall be able to do so, but they will have to bring their own cooks and feeding utensils and be content to put up with little inconveniences.

The ship whose outside appearance was the usual B I type has been changed completely by white paint on the hull and yellow paint on the funnel and upper works. She has a scarlet band one metre broad along the whole side, broken in the centre by a large scarlet Geneva Cross. The Cross is lit up at night by electric lights shining on it from above. All the boats are similarly painted and marked. The ship carries a Commission from the Viceroy. She has been registered as *H S Madras* carries the name in large brass letters fore and aft, and flies the white flag with scarlet Geneva Cross at the main and the dark blue ensign with gold anchor at the flagstaff. She slipped out of the Madras Harbour on Tuesday morning with only the Governor of Madras, Lady Pentland and the Surgeon General to see her off. We opened our sealed orders half an hour after leaving. We were ordered to proceed with all speed without convoy or escort.

I have been in charge of her from the day on which the Fund took charge and have been allowed a free hand both in the choosing of the entire staff, medical and surgical fittings, food, stores, medicines, etc. The painting, fixing of cots, sanitary appliances, coaling and ship stores, etc., have been arranged by Commander W B Huddleston, R I M, working in complete harmony and constant consultation with myself. Captain E W C Bridfield, I M S, joined me on board before the remainder of her staff. He is the Adjutant and Registrar.

The *S S Tanda* was a vessel singularly suitable for our purpose. She was built for the Chinese emigration service. She has five decks and the hold.

1. Boat deck where the ship officers and the Engineers have cabins.
2. Saloon deck in which are 1st class saloons, music room, smoking room. It is a fine broad deck giving plenty of room.
3. Main deck with 1st and 2nd class cabins all together with the 2nd class dining room.
4. The upper 'tween deck which is 9 feet high runs as an open space from stern to stern leaving only the engine room rising in the middle.
5. The lower 'tween deck is a large pillared hall forward of the engine and coal bunkers and another similar space aft.

We were rather surprised to find that the lower 'tween deck was a steel deck because each swing cot requires 12 strong bolts to hold it in position and holes for all these bolts had to be bored through the steel. Also bare steel is not suitable for a ward floor, especially in a European climate. These difficulties were soon overcome by the electric drills of the M & S M Ry Co., and by covering the steel deck with rubberoid sheets (undertaken and accomplished by Messrs Parry and Co., in 4 or 5 days). We had hardly started work when the north-east monsoon burst on us and in the course of three weeks gave us something like 40" of rain. However, the heart of Madras was in the business, and work, except painting, went on gayly. The heavy carpentry

work was done by the M & S M Ry workshops and all the sanitary fittings put in by Messrs Oakes and Co.

A second difficulty was found, and fortunately faced fairly easily, thanks to the resources of Messrs Siemens and Co. It was this. The ship's electricity, although very plentiful in amount, was 100 Volts D C whilst all the apparatus with which we intended to fit up the operation theatre and wards must perforce be borrowed or bought from the hospitals in Madras as many of the things could not be made in Madras. All the Madras stuff is made to take the town supply at 225 Volts. Fortunately Messrs Siemens were able to find somewhere in Madras two Motor Generators. The result is that the operating table can be warmed, the laundry machinery driven, the surgical arc lamp and X ray apparatus worked, the sterilisers heated, the pantostat run, the bacteriologist's centrifuge actuated, and the ward vacuum cleaners made to suck, etc., etc., on the ship without any difficulty or fear of break down.

The coal was taken out of the hold, and 700 tons of Madras beach sand placed in the holds in such a way as to balance the ship for the best steaming results. A large number of extra electric lights were fitted in all the 'tween decks (wards). The large area of the lower 'tween deck was converted from an open portion of the ship into a neat and compact series of servants' godowns, guard room, blanket and linen store, armoury, prison, padded cells, etc., etc., the whole hospital staff, as under, being comfortably accommodated.

The Madras Government passed orders that the whole of the new Steam Laundry of the Government Maternity Hospital might be taken bodily into the ship, provided that the Fund replaced it at once from England. This was done. A drying room was constructed and the difficulty of reducing the 200lbs ships boiler pressure to 30lbs for the steam disinfectant and 5lbs for the steam washers was overcome by the Superintendent and staff of the P W Workshops.

A large godown with a store keeper in charge was put at our disposal by the Madras Port Trust before the vessels arrived and everything that was wanted in the ship was gradually accumulated there in the course of six weeks. The arrangement worked very well and two additional store keepers were appointed both of whom sailed in the ship. This arrangement worked so well that only four bottles of brandy and two tins of milk have been lost out of the whole cargo.

The Government of India gave permission for the Hospital Ship to buy its medical and surgical equipment from the Government Medical Stores. The result was that one carefully prepared indent covered the whole field of a six months' supply. An Assistant-Surgeon, who is one of the staff, supervised the picking of each box so that no confusion of any kind appeared at the unpacking into the ship dispensary. The space in the ship has been divided into six wards. We carry food for Indian troops, or at least Indian kinds of food that will keep good for 6 months. A large sum in golden sovereigns reposes in the specie room in order that fresh supplies may be bought at any port. The No 4 hold is packed with an extraordinary assortment of food, gifts, red cross boxes, luggage, bed linen, blankets, tobacco, spare mattresses, etc., etc.

Now that we are at sea and rested a little after our labours, which was very severe, we are getting everything into first class order, fire stations, boat stations, physical drill duties, etc., are being organised, and we hope to arrive absolutely ready and organised so as to tell the P M O of the Forces that we can take patients in at once.

The second class dining saloon has been gutted of all tables and chairs and converted into two operation rooms divided by a white curtain of white washable drill. These theatres are fitted up in the most modern and complete style as in the Madras Government Hospitals. Next to the operation theatre the cabins have been partly dismantled, and the theatre surgeons' preparation room, recovery ward (3 beds), X Ray room, photographic room and bacteriological laboratory have been constructed. This group can be completely isolated by two doors across the alleyways and a lift has been constructed near the operation room and another forward. As the ship has no hydraulic power, the lifts must be actuated by men (the crew) walking along the deck pulling a rope or by one of the stern winches. They are now being trained to do this without the jerking and noise so dear to sailors. A soda water manufactory has been established near the laundry and is worked by the same men as work the laundry.

The nurses have a convenient sitting room formed out of two cabins. The students and assistant-surgeons use the "Smoking" room, as their mess room whilst the officers' mess is in the music room. All 1st and 2nd class passengers, i.e., all officers and all students and assistant-surgeons take meals in the 1st class dining room, but at different times.

I am afraid that this is rather a poor and detached effort, but there is so much more to do and more important that I must meet your purpose without being longer. It is a hope that will meet your purpose without being longer. It is a great game fitting up one's own hospital ship and much more satisfactory than taking over a ready-made hospital ship, but the work is the most exhausting I have ever done. It could not have been done in time, if every one

* We publish this interesting letter from Lt.-Colonel G G Giffard, C S I, I C S, of the Hospital Ship *Madras*, which has just returned to Bombay with its first batch of invalids from East Africa.—Ed, I M G

concerned in Madras had not done their very best by showing enthusiasm and a desire to make the Presidency gift a great success

Yours, etc,
G G GIFFARD, LT COL, I M S,
Officer in charge

AT SEA, 20th November, 1914

INTRAVENOUS INJECTION OF QUININE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—With reference to my letter on intravenous administration of quinine in your issue of October, in which some very severe malarial infections had been successfully treated in this way, I have since had a case in which the injection proved fatal. I forward notes of the case so that the cases previously recorded may not be misleading.

Mrs B, European, 34, female, admitted on 20th September, 1914, with a history of fever for two days—severe headache and slight cough.

The patient was fat, had an alcoholic history and a temp of 100.8, pulse 100, and respiration 22. The throat was congested slightly and there was an urticarial rash all over face and body. Heart and lungs nothing abnormal, no enlarged liver or spleen. Three grains calomel and 5 grains aspirin given separately and also diaph. mix oz 1 every 4 hours. In the evening the patient felt better with a temp of 99°F, pulse 92, and respiration 19. Blood from the finger taken and examined for malaria showed numerous malignant tertian rings, averaging 6 a field, no crescents. On 21st September, 1914, the patient's temp was 98°F, pulse 80, and respiration 20. Bowels moved once, the rash disappeared completely, and the patient took her diet well, and was put on quinine sulph., grs X T D S, in solution. Urine tested, 1016 no alb., not sugar high coloured. In the evening the temp was 100°F. The patient complained of headache and slight soreness of the throat. Examined and found the throat congested. Tongue was furred, pulse 118, and respiration 26. Bowels not moved since the afternoon, and a dose of aspirin 7 grs was given and an enema ordered.

22nd September, 1914.—In the morning the temp shot up to 106°F, pulse 136, and respiration 24. The patient was tepid sponged 103°F, and a dose 7 grains aspirin given. The patient was conscious, and complained of severe headache and restlessness. The profuse rash as on admission had reappeared. Fearing cerebral symptoms or hyperpyrexia it was decided to give grains seven of quinine Bi Hydrochloride in one pint of saline intravenously. On the table the patient took the injection well, but about an hour after this word was brought that the patient was in a dangerous collapse. The patient was perspiring profusely—had a very quick and low tension pulse, restless, dyspnoic, and cyanosed. Five minims of adrenalin was given by hypo injection, bed foot raised, free stimulation and oxygen inhalation given—suspecting in a fat subject, acute fulminating oedema of the lungs, these were examined for, but no physical signs were found.

The patient seemed to improve with treatment especially after oxygen, but soon she again became worse, temp rose to 107.6°F, pulse could not be counted, had several involuntary evacuations in the bed, became quite unconscious, and, in spite of sustained treatment for shock she died about 4½ hours after the injection. No post-mortem allowed. Just before death the patient had a severe rigor and vomited. I have to thank Mr. Iswarrah, my resident assistant surgeon, for the notes on the case.

C BRODRIBB, M B, B S (London),
Capt, I M S,
M O in charge, Civil Hospital, Secunderabad

EMETINE DURING PREGNANCY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Deare in his editions of Ghosh's *Materia Medica* notes—"Ipecac directly increases the uterine contractions and is sometimes used in early stage of labour. The student should keep this fact in mind when treating pregnant women with large doses of the drug." In the face of this warning of experience, one may reasonably hesitate to use emetine for dysentery during pregnancy when one remembers that the dose of E Hydrobrom is ½ grain which is equivalent to 30–90 grs of Ipecac (a really large dose). The following case may, therefore, be interesting, as cases of dysentery in pregnancy are not rare at this time of the year.

Mrs K, aged about 20, Hindoo female, came under my treatment on 24th October, 1914. She was in the sixth month of her second pregnancy and had been reduced almost to a skeleton from dysentery from which she had been suffering for the last six weeks. For two days I treated her with salines but finding no sign of improvement I took her guaidian into confidence, and on his readiness to run the risk of

the termination of the pregnancy I placed her on Emetine Hydrobrom. The stool on that day was only mucus and blood and had been passed 26 times in 24 hours, and the majority being at night, she had practically no sleep. After the third injection she enjoyed good sleep at night and the stools became almost wholly fecal with only a slight mucus. She altogether took six consecutive daily injections of ½ grain each, and was cured.

I then placed her on a tonic and she is now putting on flesh and blood and progressing with her pregnancy.

Yours, etc,
T N DEB,
Assistant Surgeon

PATUAKHALI,
November, 1914

LITERARY AND THERAPEUTIC NOTICES

THE American firm of Messrs. Parke Davis and Co., who have their Indian Agency at Bombay, invite the attention of practitioners to the various drugs of their own manufacture which can well be employed as substitutes for German drugs hitherto pushed into prominence by enterprising Teutonic firms. Messrs. Davis and Co. manufacture Chlorotone, Iodabim Nalgol (Ag + nucleic acid from yeast), Pituitin, ampoules of quinine and urea, proposote (a creosote preparation), hydrogen peroxide. They have also a list of 29 standardised Tinctures.

THE Macmillan Co., New York, send us advance sheets of a book entitled *The Cancer Problem* by Dr W. Serran Brimbridge of the New York Cancer Hospital, well illustrated and costing only 4 dollars. It will interest a multitude of readers, and seems to be a very complete exposition of the cancer problem up to date.

ALL workers with the microscope will be interested to learn of the addition of toluidine blue to the list of 'Soloid' Microscopic Stains. Not only is this stain of value bacteriologically as a positively diagnostic stain for *B. diphtheriae* but it is also useful as a general histological stain.

'Soloid' Toluidine Blue possesses all the excellent qualities of its predecessors issued under the same brand. To the worker who prefers to make up fresh solutions each time he requires a stain, these products are invaluable.

Issued in tubes of six by Bunnoughs Wellcome and Co.

MESSRS. N. POWELL & CO., Bombay, claim to be pioneers in manufacturing Hospital Furniture and Surgical Instruments in India, and their good work is known to a large number of Civil Surgeons on the 'Bombay side'. Recently they were suddenly called upon to meet large emergent orders for the equipment of the Hospital Ship *Loyalty* and for field Hospitals, including the Lady Hardinge Base Hospital at Bombay. The M O in charge of the H S *Loyalty* has testified to the promptness of the supply and the excellence of the goods supplied.

Service Notes.

WE understand there will be no competitive examination for the I M S in January. At the present time all men likely to enter are joining or have joined the R A M C for work at the Front. Many of these will be free at the end of the war and many are of the stamp and qualifications required for the I M S, and doubtless many will then join especially if new conditions are offered as regards pay, leave, and pensions. Most of the other grievances have vanished as we have seen in the despatches published in our September number.

WAR CASUALTIES

THE casualty lists* in the *Times* from 23rd to 26th October, both days inclusive, were again heavy, amounting to 23 officers killed, 74 wounded, and seven missing. No medical officers' names were among the killed, but Captain B. Johnson, R A M C, was reported as missing on the 24th and Lieutenant R E. Porter as wounded on the 26th. The following medical officers were also stated to be prisoners:

* For these notes on Casualties in the Great War we are, of course, indebted to Lt Col D G Crawford, I M S (ret'd).

Captain G H Rees, R A M C, reported missing on 10th September, Captain S Field, R A M C, missing on 22nd September, Captain D M Corbett R A M C, and Lieutenant J E Hepper, R A M C, not previously reported, and Staff Surgeon L L Greig, R N Captain Field and Lieut Hepper are, like many other prisoners, at Torzau, on the Elbe, in Prussian Saxony.

CAPTAIN BENJAMIN JOHNSON, R A M C, was educated in Dublin. He took the L M S of Dublin Apothecaries Hall in 1905, and after acting as Resident Medical Officer of the Royal City of Dublin Hospital, entered the army as Lieutenant on 30th July, 1906, becoming Captain on 30th January, 1910. He was recently stationed at Limerick.

CAPTAIN DANIEL MAURICE CORBETT, R A M C, was educated at Trinity College, Dublin, where he took the B A, also in 1905 the M B, B Ch and B A O. He became Lieutenant on 30th July 1906, and Captain on 30th January, 1910. He was recently stationed at Ambala.

LIEUTENANT JOHN ERIC HEPPER, R A M C, is the son of Colonel Hepper, D S O, R E, retired list. He was captured on 24th August, after the fighting at Mons. He was educated at Barts, took the M R C S and L R C P, London in 1911, and entered the army on 26th July, 1912. His last station was Upavon.

STAFF SURGEON LEWIS LISTER GREIG, R N, was educated at Glasgow, where he took the M B and Ch B in 1905. He entered the Navy in the following year, and became Staff Surgeon on 10th February 1914. He was stationed at Portsmouth, till he accompanied the Royal Naval Division to Antwerp in the beginning of October. He is a Scottish Rugby International football player.

On the 27th October the casualties reported in the *Times* were again heavy, 84 in all. 18 officers killed, 52 wounded, and 14 missing. Among the wounded was Second Lieut R H Spooner, of the Lincoln Regiment, the famous Lancashire cricketer, and among the missing Lieutenant J L Jackson, R A M C.

LIEUTENANT JOHN LUKE JACKSON, R A M C, was educated at Belfast, where he took the M B and Ch B in 1910, and received a temporary commission as Lieutenant in August 1914.

On the 28th October again 77 casualties were reported. 16 officers killed, 38 wounded, and 23 missing, among the last was Lieut H de C Dillon, R A M C.

LIEUTENANT HENRY DE CONNOY DILLON was educated at Trinity College, Dublin, where he took the B A, also the M B, B Ch, and B A O in 1907. He served for some time as a medical officer in the West African Service, and lately received a temporary Commission in the R A M C.

ONLY five casualties were reported on 29th October all in the Indian Contingent. Two killed, two wounded, and one missing. These were the first casualties reported in the force sent from India.

THE *Times* of 30th October again contained a very large list of 91 casualties. 26 officers killed, 51 wounded, and 14 missing. Among the killed was Prince Maurice of Battenberg, the youngest son of Princess Beatrice Queen Victoria's youngest daughter, a first cousin of King George, and brother of the Queen of Spain. It will be remembered that his father, Prince Henry of Battenberg served in the Ashanti war of 1895, and died on his way home on 20th January, 1896, of fever contracted in the campaign. Prince Maurice was a Lieutenant in the King's Royal Rifle Corps. One medical officer Lieut J R Hayman, R A M C, was among the wounded. Two more medical officers, whose names were not included in the official list of casualties, appeared among the obituary notices on that day—Captain R D O'Connor and Lieut D W Rintoul, R A M C.

CAPTAIN RICHARD DOMINIC O'CONNOR was born in 1884, the third son of the late Mr F W O'Connor, F R C S I, of Limerick. He was educated at Clongowes Wood College and Barts. He took the M R C S and L R C P, London in 1907, and entered the R A M C on 28th January 1907, becoming Captain on 26th July 1910. He was recently stationed at Multan. He was killed on 25th October in the battle of the Coast.

LIEUTENANT DAVID WILLIE RINTOUL was killed in the same action on 21st October. He was 25 years old, the elder son of D Rintoul, Esq., of Clifton. He was educated at St Andrews and Dundee, and took the M B and Ch B at St Andrews in 1912. On 1st June, 1913, he was appointed Lieutenant in the 3rd South Midland Field Ambulance, stationed at Bristol, and entered the R A M C as Lieutenant on 30th January, 1914. He had only recently finished his course of training when the war broke out.

LIEUTENANT JOHN ROLLO HAYMAN was educated at Middlesex Hospital, took the M R C S and L R C P, London, in 1911. He was recently Senior House Surgeon of Maulesfield General Infirmary, and was appointed Lieutenant in the Reserve of the R A M C on 13th March, 1912.

On 31st October the *Times* again contained a long list of 79 casualties. 25 officers killed, 49 wounded, and five missing. Two medical officers, Captains M J Lochin and R H Nolan, were among the killed, while one, Lieutenant G H Chisnall was wounded. The death was also reported of Dr S H Crowther while serving as a despatch rider.

CAPTAIN MICHAEL JOSEPH LOCHIN took the L R C S I and L R C P I in 1904, entered the R A M C as Lieutenant on 30th July, 1906, and became Captain on 30th January, 1910. He was recently stationed at Aldershot.

CAPTAIN RUPERT HENRY NOLAN was educated at University College, London. He took the M R C S and L R C P, London in 1908, got his first commission as Lieutenant on 30th January, 1909, after serving as Assistant Medical Officer to the London County Council Asylum at Banstead, and became Captain on 30th July, 1912. He was recently at the R A M C College.

DR SIDNEY NELSON CROUTHER was killed on 18th October, aged 39 while acting as a motor cyclist despatch rider. He took the M R C S and L R C P, London, in 1903, and after filling the posts of Prosecutor at the Royal College of Surgeons, Senior House Physician of Westminster Hospital, and Assistant Medical Officer at Brookwood Asylum, became Senior Medical Officer of the Surrey County Asylum at Netherne, Merstham, leaving that appointment to go on service.

It should also be mentioned that among the officers reported killed on 30th October was Lieutenant T Prian, of the Leicester regiment, son of Lt Colonel Sir David Prian, C I E, C M G, Bengal Medical Service, retired, now Director of the Royal Botanic Gardens at Ken.

THE *Times* of 2nd November contained two long lists of casualties, no less than 111 names in all, viz., 46 officers killed, 58 wounded, and seven missing. Several of the Indian contingent were included in the lists. Four medical officers were among the killed. Captain R D O'Connor (whose name had previously appeared, unofficially, among the deaths) and Lieutenants H J S Shields, R E Porter, and G H Chisnall. The two last had been previously reported wounded. A fifth medical officer's name was among the deaths on the first page, Lieutenant D Wardleworth.

LIEUTENANT HENRY JOHN SLADEN SHIELDS was killed in action on 26th October. He was the son of the Revd A J Shields, of Thoinford Rectory, Sherborne, Dorset, and was educated at Loreto, Jesus College Cambridge, where he was stroke of the Cambridge boat in 1910, and Middlesex Hospital. He took the M R C S and L R C P, London, in 1912, the M B, B S, Cambridge, in 1914, and got his first commission on 25th July 1912. Previous to the war he was stationed at Pribright camp. Since the war began he had been attached to the Irish Guards, and was reported missing on 10th September, after the retreat from Mons, but rejoined.

LIEUTENANT REGINALD EDWARD PORTER was aged 26. He was educated at London Hospital, took the M R C S and L R C P London, in 1911, the M B and B S, London, in the same year, and after filling the post of House Surgeon of the Royal Lee Hospital, entered the R A M C as Lieutenant on 26th July, 1912, one place above Shields. He was recently stationed at Limerick.

LIEUTENANT GEORGE HENRY CHISNALL died of shell wounds at Poperinghe, Belgium on 24th October, aged 28. He was the son of C N Chisnall Esq. of Farning Abbey, Essex, and was educated at London Hospital, where after taking the M R C S and L R C P, London, in 1908 the M B B S, London, in 1910, he served as House Physician and House Surgeon. He was appointed a temporary Lieutenant in the R A M C on 7th August 1914, and was attached to the 1st Battalion, Cameron Highlanders.

LIEUTENANT DOUGLAS WARDLEWORTH was educated at Owen's College, Manchester—took the M B and Ch B, Victoria in 1905, and after serving as House Surgeon to the Royal Hospital, Salford, and House Physician to the Royal Infirmary, Manchester, went into practice at Shevingham, Norfolk. He had only been gazetted as a temporary Lieutenant in the R A M C in October. He was accidentally drowned, while bathing, at Havre, on 24th October.

THE *Times* of 3rd November published another list of casualties in the battle of the Coast still fiercely raging for the possession of the littoral of south west Belgium and north east France. It was shorter than those of the last few days, containing the names of 36 officers. 17 killed, 15 wounded, and four missing. Two medical officers were among the killed. Lieutenants Shields and Rintoul, both of whose names had previously appeared, unofficially, in the obituaries. It was also stated that Captain S Field R A M C, reported missing on 26th September was a prisoner.

THE casualties list published in the three days 4th, 5th, and 6th November, included 179 names, viz., 63 officers killed, 93

wounded, and 23 missing exclusive of Indian Native Officers. No names of medical officers were included in these three days.

The *Times* of the 4th November publishes a list of British officers upon whom the French Government has conferred the Legion of Honour. Seventeen received the officer's cross, and first 100 that of Chevalier. Four medical officers who are included in the number, are—Major S. L. Cummins, R.A.M.C., receiving the officer's cross, and three, Captains S. E. Lewis, J. T. McIntire, and H. S. Ranken, that of Chevalier. All four were mentioned in Sir John French's late despatches. Captain Ranken was killed in action on 24th September.

The hospital ship *Rohilla*, Captain Neilson, struck on the rocks off Whitby, on the Yorkshire coast, about 4 A.M. on 30th October, and was totally lost, the last survivors being taken off on the morning of November 1st. She was a British India boat, chartered by Government. Captain Neilson must be well known to many in India. More than twenty years ago he earned the medal of the Royal Humane Society by going overboard, on a duty night, in the channel, to save a man who had fallen overboard. He was the last to leave the ship.

Fortunately the *Rohilla* had no patients on board at the time of the wreck, being bound for France to fetch the wounded. She had, however, a large medical staff on board. The accounts in the papers are not clear as to the names of those saved and lost, respectively. About 70 lives appear to have been lost. The *Times* gave the names of the following as the medical staff on board, from an Admiralty list—

FLEET SURGEON ERNEST COURTNEY LOMAS, D.S.O., R.N., in medical charge.

SURGEONS, R.N.V.R. Thomas Caldwell, Little Jones, Samuel Leslie Macbean, Herbert Leith Murray, Alfred Ernest Wilson Hird, and Lionel Spence Ashcroft, and Charles Boehman Heald.

TEMPORARY SURGEONS, R.N. Thomas H. Cresswell, G. J. C. Smyth, J. R. Collie, James Cowin Watt, William Agud Pocock, Frederick Ernest Chipman.

NURSING SISTERS Misses Mary B. Bennett, M. Bevington, O. L. Hocking and M. B. Patterson.

Of the above, the names of all four sisters, of Fleet Surgeon Lomas, and of all the R.N.V.R. Surgeons, except Dr. Heald, appear in the list of those saved. Of the temporary Surgeons, only one name is in that list, Dr. Cresswell's. The names of Dr. Heald, and of the other five temporary Surgeons, do not appear in the lists either of saved or lost, and it is possible that they were not on board. On the other hand four other names appear in the list of saved, which are not given above, Surgeons Eastwood, McKenzie, and Maclean (the last perhaps Macbean's name repeated), and Dental Surgeon J. W. Paul.

FLEET SURGEON LOMAS is an Owen's College man, who took the M.B. and Ch.B. Victoria, in 1888, the F.R.C.S. Edinburgh in 1907, and attained his present rank on 21st October, 1904. Dr. Little Jones is a leading Liverpool Surgeon. He took the M.R.C.S. and L.R.C.P. from Barts in 1897, the F.R.C.S. in 1902, has served as a plague medical officer in Bombay and as a Civil Surgeon in the South African war. He is Honorary Surgeon to Liverpool Royal Infirmary, and Lecturer on Clinical Surgery in Liverpool University. He joined the R.N.V.R. on 25th November, 1904. Dr. Macbean is M.B., B.S., Durham 1905. He was formerly a Surgeon in the Navy, and in the practice at Newcastle. Dr. Murray took the M.B. and Ch.B. with the honours at Aberdeen in 1911, the M.D. in 1905. He is in practice at Liverpool, is Honorary Assistant Surgeon to the Hospital for Women at Liverpool, and joined the Nursery Division, R.N.V.R. on 15th February 1909. Dr. Hud was educated at Cambridge and Birmingham, took the M.R.C.S. and L.R.C.P. in 1908, and is in practice at Edgbaston, Birmingham. Dr. Ashcroft is a Liverpool man. He took the M.B. and Ch.B. there in 1910, is in practice at Sefton Park, Liverpool, and joined the Nursery Division, R.N.V.R. on 9th December, 1912. Dr. Heald was educated at Barts, Freiberg, and Stockholm. He took the M.R.C.S. and L.R.C.P. in 1909, the M.A., M.B., and B.Ch. at Cambridge in 1910, also the D.P.H. in 1912, and the M.D. in 1913. He is attached to the medical department of the Education Board, Whitehall, as Inspector of Physical Training. Dr. Watt is M.B. and Ch.B. Glasgow, 1913. Dr. Pocock was at Barts and Cambridge. He took the M.B. and B.Ch. Cambridge, the M.R.C.S. and L.R.C.P. in 1913. Dr. Chipman is a famous Guy's and England Rugby player, who has figured several times as three quarters in the English international fifteen.

At the inquest on the bodies of those drowned, held on 4th November, it was stated that the *Rohilla* struck a floating mine, before she went ashore.

Dr. R. G. Oram, the ship's Surgeon, was also among those saved.

A later statement reports that all the medical officers were saved. Drs. Heald, Smyth, Watt, Collie, Pocock, and Chipman were not on board, the names of Eastwood and MacKenzie appear to be due to a mistake.

DEPUTY SURGEON GENERAL EDWARD MCKELLAR, J.P., Bengal Medical Service, retired, died at Brighton on 27th October 1914. He was born on 28th May 1827, the son of Dugald McKellar, Surgeon, of Battersea. He was educated at University College, London and took the M.R.C.S. in 1849, also the M.D. St. Andrews subsequently in 1870. He entered the I.M.S. as Assistant Surgeon on 9th July 1851, being nominated by Mr. W. J. Eastwick, at the request of Sir Charles Forbes. He became Surgeon on 20th December, 1863, Surgeon Major on 9th July, 1871, and retired with a step of honorary rank on 31st March, 1877. He had a long list of War Service beginning with the second Burmese War of 1852-53, when he served throughout the war with H.M.'s 80th Foot, was present at the capture of Maitaban, at the operations before Rangoon on 12th to 14th April, was in medical charge of Major Cotton's force at the capture of Piomein in June, 1852, and subsequent operations in its vicinity, was mentioned in despatches in the *London Gazette* of 20th August 1852, and received the medal with clasp. In the Mutiny he served with the third European regiment in actions near Agia on 5th July and 10th October 1857, in medical charge of Major Montgomerie's force in engagements with rebels near Aligarh on 24th August, with Colonel Seaton's column in the actions of Gundi and Patiali, and to the end of the campaign in medical charge of Murray's Jat Horse, serving in Colonel Kelly's Brigade in Oudh, and was senior medical officer present in the action with the Nana Sahib's force near Butwal, on the Nepal frontier, and received the Mutiny medal. Ten years later, in 1868, he served with the 10th Bengal Lancers in Abyssinia, gaining another medal. All his service, with the exception of one short interval, was spent in military employ. After the Burmese war he was posted to the Gwalior contingent, with which he remained till 1857, when the contingent mutinied. During the Mutiny he served, as stated above, with Murray's Jat Horse, now the 14th Bengal Lancers. In 1860 he was Civil Surgeon of Meerut. In 1861 he went on leave to New Zealand. On 9th February 1862, he was posted to the 10th Bengal Cavalry, or Hodson's Horse, now the 10th Duke of Cambridge's Own Lancers. After the Abyssinian war he took long furlough to England, and after his return on 1st December, 1872, joined the 1st Bengal Cavalry, with which he remained till he retired.

BRIGADE SURGEON HENRY ATKINS, Bombay Medical Service (retired) died at Weston super mare on 1st November, aged 84. He was born in 1830, and was educated at St. George's. After taking the M.R.C.S. and L.S.A. he acted for two years as House Surgeon of Southampton Infirmary, before entering the I.M.S. as Assistant Surgeon, which he did at the first competitive examination, on 24th January 1855. He became Surgeon on 24th January, 1857, Surgeon Major on 1st July, 1873, and retired with a step of honorary rank on 31st December 1885. Though he was in India at the time of the Mutiny the *Army List* assigns him no war service. On 7th November, 1856 he was posted as Surgeon to the Rajkot Political Agency and on 29th October, 1857 to that of Bhuj, on 22nd June, 1858, he joined the Indian Navy, and in 1860 the Kelat Agency and in 1861 became Civil Surgeon of Thana. On 6th February 1863, he was appointed Surgeon of the 4th Bombay Native Infantry, in 1869-71 he was on furlough in England in 1872-75 was again Civil Surgeon of Thana, and was Residency Surgeon at Baroda from 1876 to 1882, when he again took furlough on the expiration of which he reverted to military duty for a short period, till he retired.

MAJOR SIR RONALD ROSS, K.C.B., Madras Medical Service, retired, was presented on 19th October by the Royal College of Physicians, London, with the Bisset Hawkins Memorial Medal, awarded triennially in recognition of work in sanitary science or in promoting public health during the preceding ten years. The award was made in recognition of his researches on malaria. On 2nd November Sir Ronald Ross delivered the Huxley Memorial Lecture on recent advances in science in relation to medicine and surgery, at Charing Cross Hospital.

THE following is the list of private medical practitioners selected by the Director General, Indian Medical Service, for temporary military service—Dr. J. C. Ramsay, Dr. R. G. Berryman, Dr. R. G. Ranade, Dr. J. K. Naikman, Dr. G. L. Bati, Dr. Satis Das, Dr. G. Stiebd, Dr. S. N. Mukerjee, Dr. Kolaporewalla, Dr. D. Giri, Dr. S. M. Chaudhuri, Dr. T. H. Bishop, Dr. R. C. Malhotra, Major T. O. Langston (retired list), Dr. Satyendra Nath Roy, Dr. Jotendra Mohan Das Gupta, Dr. J. B. Molony, Dr. M. B. Yin, Dr. Bindaswari Prasad, Dr. B. S. Moonje, Dr. S. C. Sen Gupta, Dr. Ian Grant, Dr. R. Jones, Dr. K. B. Kanga, and Dr. Sihavala.

MAJOR P. P. ATAL, I.M.S. who has been killed in action in France, was with the 129th Beluchis. He entered the service on 29th January, 1899.

RAJA SIR HARNAM SINGH's many friends will be grieved to learn that his son, Captain Kunwar Indrajit Singh, I M S, 57th Wilde's Rifles, was killed in action in France on the 23rd November.

THE London *Evening News* of 29th October publishes a long account of the hardships experienced as a prisoner in Germany by Colonel A F Dobson, I M S, retired, who was undergoing a cure in the Tyrol when war was declared.

Colonel Andrew Francis Dobson was born on 10th June, 1848, so is now more than sixty six years old, much over the age for military service, so that there was no military necessity for his detention as a prisoner, even apart from the state of his health. He entered the Madras Service on 30th March, 1872, and retired after five years in the administrative rank, on 28th May, 1906.

THIS account shows the animosity of the enemy against anything British. It has been reproduced in most of the Indian newspapers and need not be here repeated.

WE are glad to learn that Surgeon General Harris CSI, I M S, has been again put on the Bengal Legislative Council. As the Surgeon Generals with the Government of Madras and of Bengal are always members of the Councils of those Presidencies it is presumed that the appointment of Surgeon General Harris is an example which will in future be followed.

THE Casualty list of 7th November included the names of 23 officers, 10 killed and 13 wounded. One medical officer, Lieutenant G R Grant, was wounded. It was also stated that Captain B Johnson, R A M C, reported missing on 24th October, is a prisoner, and that Captain W Egan, R A M C, captured at Landrecies on 28th August, is a prisoner at Ciefold, near Dusseldorf.

A MUCH longer list appeared in the *Times* of 9th November, and gave 91 names, 17 killed, 57 wounded, and 17 missing. Captain R G Kinkead, R A M C, was killed, Captain H G Gibson, and Lieutenant C W B Littlejohn, R A M C, wounded.

CAPTAIN RICHARD GEORGE KINKEAD was educated at Queen's College, Galway, took the M B B Ch, and B A C of the Royal University of Ireland in 1908, and after serving as Assistant House Surgeon of the Coventry and Warwick Hospital, entered the Army as Lieutenant on 31st July 1909, becoming Captain on 31st January 1913. He was recently stationed at Bloemfontein.

CAPTAIN HOWARD GRAEME GIBSON is a Guy's man. He took the M R C P and L R C S, London in 1907, entered as Lieutenant on 28th January, 1907, and became Captain on 28th July, 1910. He had recently been through the R A M C College.

LIEUTENANT G R GRANT entered the R A M Special Reserve as Lieutenant on 4th June, 1912. His name is not in the *Medical Directory*.

LIEUTENANT W C B LITTLEJOHN had only just qualified and got a temporary commission as Lieutenant from 8th August, 1914.

NO list of casualties was issued on 10th November, but the *Times* of 11th November published the largest list of casualties among officers yet given out, of the British expeditionary force, 23 killed, 36 wounded, 5 missing, of the Indian contingent, 26 British officers killed, 13 wounded, and 3 missing, and of Native officers, 8 killed, 12 wounded and 3 missing, a total of 129. Among them were Lieutenant J A O'Driscoll, R A M C, wounded, and Captain A M Pollard, R A M C, missing. Besides these, Lieutenant Angus Macnab, Medical Officer of the London Scottish was reported killed, Assistant Surgeon F J Bernard, I S M D, died, and Captain A C Osburn, R A M C, wounded, though these names did not appear in the official casualty lists.

LIEUTENANT ANGUS MACNAB was attached to the 14th (County of London) Battalion of the London Regiment, a Territorial Battalion of the London Scottish, his commission being dated 1st March, 1911. The *Times* states that in the recent charge by the London Scottish, when the battalion temporarily gave way, the advancing Germans bayoneted Lieutenant Macnab, and the wounded whom he was attending. He was a New Zealander, a brother of Mr Robert Macnab, late Minister of Agriculture in the Dominion. He was educated at the Universities of Otago, Edinburgh, Freiburg, and Vienna, took the B A in 1895 and the B Sc in 1896 at Otago, the M B and B Ch in 1901, and the F R C S England in 1904. He was a consulting ophthalmic surgeon at 10, Harley Street, London. After filling the post of House Surgeon in the Ophthalmic department at the Edinburgh Royal Infirmary, he was chief clinical assistant at the

Royal Ophthalmic Hospital, clinical assistant in the Ophthalmic department, Charing Cross Hospital, and Ophthalmic Surgeon to King Edward's Hospital, Windsor. He translated Oxenfeldt's *Bacteriology of the Eye* and contributed various papers on his speciality to the medical journals. During the South African war he served with the New Zealand contingent, and received the medal.

CAPTAIN A C OSBURN, R A M C, attached to the 1st Dragoon Guards, has been admitted to the Royal Victoria Hospital, Netley, wounded. He entered the army as Lieutenant on 26th August, 1903 and became Captain on 23rd February, 1907. He was recently stationed at Netley.

CAPTAIN ALEXANDER MORTON POLLARD, R A M C, was educated at King's College, London, and took the M R C S and L R C P London in 1906. After serving as Assistant House Surgeon at the Norfolk and Norwich Hospital, Surgeon of King's College Hospital and resident medical officer at the St John and St Elizabeth Hospital, he entered the R A M C as Lieutenant on 1st August, 1908 and became Captain on 1st February, 1912. He was recently stationed at Colchester.

LIEUTENANT J A O DRISCOLL joined the Special Reserve as Lieutenant on 27th April 1914. His name does not appear in the *Medical Register*.

ASSISTANT SURGEON FREDERICK JOSEPH BERNARD, I S M D, was born on 22nd February 1880, attained warrant rank on 13th March 1902 and reached his present grade, the third, on 31st March, 1907. He is a Madras man, and was recently stationed at Malapuram.

THE recent naval action in the Pacific, in the beginning of November, appears to have resulted in the loss of the *Good Hope* and *Monmouth*, though detailed accounts are not yet (8th Dec) to hand, and no list of casualties has yet been published. The *Navy List* gives the following as the Medical Staff of the two ships. Fleet Surgeon Walsh joined his ship in August 1913, the others at the beginning of the War.

Good Hope—Fleet Surgeon J J Walsh, Surgeon Francis C Seale, Surgeon Reserve Francis L J M de Veitenvil.
Monmouth—Staff Surgeon Henry Woods, Surgeon Albert J Tomkinson.

AS we go to press we learn that Major T F Paterson, I M S, has been wounded in the fighting in the Persian Gulf region. Major Paterson was Medical Officer of the 37th Buluch Horse. Formerly he was in Civil employ at Surat.

MAULVI MUHAMMAD MUTI ULLAH KHAN, Khan Bahadur, Deputy Magistrate, to hold executive charge, and Lieutenant Colonel W Woodwright, I M S, Civil Surgeon, to hold medical charge of the Breilly Central Prison as a temporary measure in addition to their own duties, from the afternoon of 24th October, 1914, *vice* Major J E Clements, I M S, reverted to military duty.

MR E THOMAS, Deputy Magistrate, to hold executive charge and Dr H A Macleod, Civil Surgeon, to hold medical charge of the Central and District Jails, Fatehgaon, as a temporary measure, in addition to their own duties, with effect from the afternoon of 22nd October, 1914, *vice* Capt I M Macrae, I M S, reverted to military duty.

MR C F WOOD, I C S, Joint Magistrate, to hold executive charge, and Lieutenant-Colonel J M Crawford, I M S, Civil Surgeon, to hold medical charge of Central and District Jails, Benares as a temporary measure, in addition to their own duties, from the afternoon of 21st October, 1914, *vice* Captain C E Palmer, I M S, reverted to military duty.

THE Assistant Surgeon attached to the sirdi dispensary, Rae Bareilly, to hold civil medical charge of that district in addition to his own duties, *vice* Major Walker, I M S, reverted to military duty.

THE Civil Surgeon of Lucknow to hold visiting medical charge of the Rae Bareilly district, *vice* Major Walker, I M S, reverted to military duty.

CIVIL ASSISTANT SURGEON DINESH KRISHNA MUKERJI, attached to the sirdi dispensary, Moradabad, to hold civil medical charge of that district in addition to his own duties, *vice* Major Willmore, I M S, reverted to military duty.

THE Civil Surgeon of Breilly to hold visiting medical charge of the Moradabad district, *vice* Major Willmore, I M S, reverted to military duty.

THE Assistant Surgeon attached to the sirdi dispensary, Ghazipur, to hold civil medical charge of that district, in addition to his own duties, *vice* Major Wells, I M S, reverted to military duty.

THE Civil Surgeon of Benares to hold visiting medical charge of the Ghazipur district, *vice* Major Wells, I M S, reverted to military duty.

MR W JOHNSTON, ICS, Subdivisional Officer, made over executive charge of the Buxar Central Jail to Major F H Watling, IMS, in the forenoon of the 22nd October 1914. The latter officer was again relieved of the executive charge of the Central Jail by Mr W Johnston, ICS, Subdivisional Officer, in the same forenoon.

BABU SURENDRA NATH SEN GUPTA, Assistant Surgeon, made over medical charge of the Buxar Central Jail to Major F H Watling, IMS, in the forenoon of the 22nd October, 1914. The latter officer was again relieved of the medical charge of the Central Jail by Babu Surendra Nath Sen Gupta, Assistant Surgeon, in the same forenoon.

THE degree of M D (Oxon) has been conferred on Capt O A R Berkeley Hill, *in absentia*.

THE following 44 officers of the Indian Medical Service have reverted to military duty in the first half of November — Colonel Seton, Lieutenant Colonels Austen, Smith, Perena, Mittel, Stevens, Milne, Crawford, Enticam, Hugo and Browning Smith, Majors Hawey, James, Pulton, Mackie, Candon, Anderson, Illius, Kemps, Illington, Cameron, Chaudhuri, Stephen, Maddock, Stewart, Murphy, King, Munison, Knapton, Anthony, Dakhle, Christian, Lapsley, Williams, Broome, Innes, Lindsay, Chitale and Ramei, and Captains Cragg, Pierpoint, Russell, Lack, Kelsall and Robson. Including this batch a total of 264 I M S officers have been withdrawn from Civil employ.

THE services of Major A W Overbeck Wright, IMS, Superintendent, Lunatic Asylum, substantive *pro tempore*, Agri, are placed at the disposal of the Government of the Punjab.

CAPTAIN T D MURISON, IMS, on plague duty, Gorakhpur, to officiate as Chief Plague Officer, United Provinces.

THE Civil Surgeon of Gorakhpur to hold visiting medical charge of the Azamgarh district, with effect from the date, Major N S Wells, IMS, Civil Surgeon, Ghazipur, reverted to military duty.

SURGEON GENERAL HAPRIS' troops of friends have been well pleased to see that in the *London Gazette*, October 19th, he has been appointed Honorary Surgeon to the King, with effect, however, from the retirement of Surgeon General A M Crofts, CIE, on 25th May, 1914.

I M S retired officers are coming to the front in various capacities, e.g., Lieutenant Colonel Gimlette, CIE, is gazetted as commanding a Hospital Ship, Lieutenant Colonel F Wyville Thomson has been appointed S M O, Tay Defences, Dundee, Sir Charles Bedford tells us he is "back to the army again." Lieutenant Colonel D G Crawford and Lieutenant Colonel Alpin have taken up recruiting jobs and afterwards have been appointed to Hospital Ships. Lieutenant Colonel Sir H H Thornhill is appointed an Inspector of Medical Services in connection with places of internment of prisoners of war. Lieutenant Colonel Baker, as all know, is commanding the Indian Field Ambulance.

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of India in the Home Department with effect from the dates noted against their names —

- 1 Captain A M Jukes, IMS, afternoon of the 3rd October, 1914.
- 2 Major A B Fry, IMS, afternoon of the 20th October, 1914.
- 3 Major D P Gail, IMS, afternoon of the 22nd October, 1914.
- 4 Lieut Col E R Parry, IMS, forenoon of the 26th October, 1914.
- 5 Major W G Hamilton, IMS, afternoon of the 26th October, 1914.

THE services of the undermentioned officers are replaced at the disposal of the Government of India in the Home Department with effect from the dates mentioned against their names —

- 1 Captain K K Mukerjee, IMS, afternoon of the 1st October, 1914.
- 2 Captain R B Lloyd, IMS, afternoon of the 20th October, 1914.
- 3 Captain F H Salisbury, IMS, afternoon of the 20th October, 1914.
- 4 Major J M Woolley, IMS, afternoon of the 25th October, 1914.
- 5 Captain A Denham White, IMS, afternoon of the 26th October, 1914.

MAJOR R E LLOYD, IMS, Professor of Biology, Medical College, Calcutta, is appointed to hold charge of the duties of Resident Physician of the College Hospital, in addition to his own duties, with effect from the afternoon of the 20th October 1914, or until further orders.

LIEUTENANT COLONEL WILKINSON, FRCS, DPH, IMS, has been permitted to retire. He has recently received a sanitary appointment under the Local Government Board.

LIEUTENANT COLONEL R H ELLIOT, IMS, has been granted an extension of furlough on medical certificate.

LIEUTENANT COLONEL C DULR, FRCS, IMS, has been permitted to retire with effect from 29th November, 1913. Lt Col Dulr was for many years a Civil Surgeon in Rangoon and other parts of Burma, where he represented the *Gazette* as an Associate Editor. He was recently Civil Surgeon of Simla, but had to take leave on medical certificate.

HIS Excellency the Governor of Bombay in Council is pleased to make the following appointments pending further orders —

Captain J B Hanafin, FRCSI, IMS, to act as Civil Surgeon, Aden, in addition to his Military duties, *vice* Major A W Take, FRCSI, DPH (Ire), IMS.

Captain A G Tiesiddoi, MD, IMS, to act as Personal Assistant to the Surgeon General with the Government of Bombay, in addition to his military duties, *vice* Major J H Horton, DSO, MB, IMS.

DR R W FISHER, MB, BCh, DPH (RUI), to act as Civil Surgeon, Belgaum, in addition to his own duties, *vice* Captain F Shingleton Smith, IMS.

HIS Excellency the Governor of Bombay in Council is pleased to appoint Major J H Horton, DSO, MB, IMS, who reverted to military duty with effect from the 14th September 1914 to continue to act as Personal Assistant to the Surgeon General with the Government of Bombay in addition to his Military duties pending further orders.

ON the expiry of his tenure as Civil Surgeon, Pachmarhi, Major W H Kenrick, LRCP, MRCS, DTM, IMS, is posted to the Chhindwara District as Civil Surgeon.

THE services of the undermentioned officers are replaced at the disposal of His Excellency the Commander in Chief in India —

Major W F Haavey, MB, IMS
Major F P Mackie, MB, FRCS, IMS
Captain F W. Cragg, MD, IMS

THE services of the officers named below have been replaced at the disposal of His Excellency the Commander in Chief in India —

Major de V Condon, IMS
Major W M Anderson, IMS

MAJOR S HUNT, IMS, an Agency Surgeon of the 2nd Class, is posted as Agency Surgeon, Baghelkhand, with effect from the 4th November 1914.

THE following promotion is made, subject to His Majesty's approval —

Lieutenant to be Captain, I M S

Denis Fitzgerald Murphy, MB, dated the 29th July 1914. Captain Murphy entered the service on 29th July 1911. Of this batch 10 officers are now promoted Captain out of 14.

MR G H HARRIS, Extra Assistant Commissioner, assumed executive charge of the office of Superintendent of the Montgomery Central Jail, in addition to his own duties, on the afternoon of the 22nd October 1914, relieving Major A W. Greig, IMS, who reverted to military duty.

PANDIT CHAMAN LAL, officiating Civil Surgeon, Montgomery, assumed medical charge of the Montgomery Central Jail, in addition to his own duties, on the afternoon of the 22nd October 1914.

MR F L BRAINE, ICS, Assistant Commissioner, assumed executive charge of the office of Superintendent of the Multan Central Jail, in addition to his own duties, on the afternoon of the 25th October 1914, relieving Major R M Dalziel, IMS, who reverted to military duty.

MAJOR E L WARD, IMS, Superintendent, Lahore Central Jail, assumed charge of the office of Superintendent of the Boistal Central and Female Jails, Lahore, in addition to his own duties, on the afternoon of the 27th October 1914, relieving Captain W T Finlayson, IMS, who reverted to military duty.

LIEUTENANT COLONEL D G CRAWFORD, I M S (retired) was appointed a Medical Officer on the Hospital ship *Glenart Castle* and when she was damaged by a collier off Tillbury, he was transferred to the *H S Syria*. The other I M S Officers attached were Lieutenant Colonel Dawson, Lieutenant Colonel Greany, Lieutenant Colonel Gilbert, Lieutenant Colonel Hulbert, Major Peck, and Captain Pierpont (the latter having just returned in charge of a wounded officer from Persia).

The *Gulford Castle* is another Hospital ship and had on board on the staff J N Macleod and Peck.

It is an eminently sound measure to thus employ the able and willing retired officers and to leave those on the active list for the duties in the Field.

MAJOR V E H LINDSAY, I M S, Civil Surgeon of Pulli, has gone to military duty.

CAPTAIN T D MURISON, I M S, officiating Chief Plague Officer, United Provinces, to hold civil medical charge of Muttra in addition to his own duties.

MISS K WALL, L R C P & S (Edin), F R C S, L M (Dub), is appointed as a temporary Civil Assistant Surgeon in Burma, with effect from the date on which she assumes charge of her duties.

ON return from leave Lieutenant Colonel R H Castor, I M S, is appointed to be Civil Surgeon, Pegu, as a temporary measure, in place of Civil Assistant Surgeon Maung Shwe Ge.

FIRST CLASS Military Assistant Surgeon W L Brookes, Civil Surgeon, Kindat, is appointed to be Civil Surgeon, Monywa, as a temporary measure, in place of Senior Military Assistant Surgeon and Honorary Lieutenant E J Murphy, transferred.

ON relief by first class Military Assistant Surgeon W L Brookes, Senior Military Assistant Surgeon and Honorary Lieutenant E J Murphy is appointed to be Civil Surgeon, Mandalay, as a temporary measure, in place of Major H A Williams, D S O, I M S, whose services have been replaced at the disposal of the Government of India.

CAPTAIN F J KOLAPORI, I M S, is appointed to hold collateral charge of the Civil Surgeoncy of the Bhama District, in place of Captain L A H Lack, I M S, whose services have been replaced at the disposal of the Government of India.

THE services of the following officers are replaced at the disposal of the Government of India in the Home Department —

Lieutenant Colonel J Entrican, I M S
Major H A Williams, D S O, I M S
Captain R Kelsall, I M S
Captain L A H Lack, I M S

SECOND class military Assistant Surgeon P A Scanlon is appointed to officiate as Civil Surgeon, Palam, in place of Senior Military Assistant Surgeon and Honorary Lieutenant L K Rodriguez, transferred.

ON relief by second class Military Assistant Surgeon P A Scanlon, Senior Military Assistant Surgeon and Honorary Lieutenant L K Rodriguez is appointed to be Civil Surgeon, Meiktila, in place of Lieutenant Colonel J Penny, I M S, transferred.

ON relief by Senior Military Assistant Surgeon and Honorary Lieutenant L K Rodriguez, Lieutenant Colonel J Penny, I M S, is appointed to be Civil Surgeon of the Amherst District, in place of Lieutenant Colonel J Entrican, I M S, whose services have been replaced at the disposal of the Government of India.

PENDING the arrival of Lieutenant Colonel J Penny, I M S, Lieutenant Colonel R H Castor, I M S, is appointed to the civil medical charge of the Amherst District, as a temporary measure.

HIS EXCELLENCY the Governor in Council is pleased to appoint Dr Accacio da Gama, L M & S, D P H, D T M & H, to act as Deputy Sanitary Commissioner, Central Registration District, pending further orders.

ASSISTANT SURGEON G G BOPARDIKAR, L M & S, Civil Surgeon, Alibag, has been granted from the 20th September 1914 such privilege leave of absence as may be due to him on that date in combination with furlough for such period as may bring the combined period of absence up to eight months and nine days.

HIS EXCELLENCY the Governor of Bombay in Council is pleased to appoint Assistant Surgeon R S Poredi, L M & S, to act as Civil Surgeon, Alibag, during the absence on leave of Assistant Surgeon G G Bopardikar, L M & S, or pending further orders.

MAJOR R W ANTHONY, M B, C M (Edin), F R C S (I), I M S, has been allowed by His Majesty's Secretary of State for India to return to duty.

HIS EXCELLENCY the Governor of Bombay in Council is pleased to make the following appointments, pending further orders —

LIEUTENANT COLONEL J H McDONALD, M B, C M (Edin), I M S, on return from leave, to do duty as Civil Surgeon, Thana, and Superintendent, Lunatic Asylum, Navpada, *vice* Major L P Stephen, M B, D Ch (Aldn), D P H (Lond), F R C S (I), D T M and H (Cantab), I M S.

MAJOR A W TUKI, F R C S (I), D P H, I M S, to act as Civil Surgeon, Kairachi, in addition to his military duties, *vice* Major A F W King, F R C S (E), I M S.

THE services of the undermentioned officers of the Jail Department are placed temporarily at the disposal of His Excellency the Commander in Chief in India, with effect from the dates on which they were relieved of their duties —

Captain G W Macdonachie, I M S
Captain W L Forsyth, I M S
Captain F A Barker, I M S
Captain S W Jones, I M S
Captain W A Marins, I M S
Captain P K Tarapore, I M S
Captain D C V Fitzgerald, I M S

MAJOR F E WILSON, Indian Medical Service, an officiating Agency Surgeon of the 2nd class, is appointed temporarily to hold visiting charge of the office of Residency Surgeon, Mewar, in addition to his own duties, with effect from the 1st November, 1914, and until further orders.

MAJOR P O DOUGLASS, Royal Army Medical Corps, commanding Station Hospital, Nowgong, is appointed temporarily to hold charge of the current duties of the appointment of Agency Surgeon in Bandelkhand, in addition to his own duties, with effect from the 17th September, 1914, and until further orders.

DOCTOR H T HOLLAND, Church Missionary Society, is appointed to officiate temporarily as an Agency Surgeon, 2nd class, and is posted as Civil Surgeon, Sibi, with effect from the 7th October 1914, and until further orders.

THE services of the undermentioned officers of the Indian Medical Service are placed temporarily at the disposal of His Excellency the Commander in Chief for employment on the hospital ship *Madras*, with effect from the 10th November 1914 —

Lieutenant Colonel G G Gifford, C S I
Major T H Symons
Major Dewan Ganpat Rai
Captain E W C Bradfield
Captain Hugh Stott

THE services of the undermentioned medical officers are placed temporarily at the disposal of the Government of India, Army Department, with effect from the dates they hand over charge —

MAJOR N R J RAINIER, M R C S, D P H, I M S, Civil Surgeon, Raipur.
MAJOR P K CHITALI, L R O P, L R O S, L I P S, I M S, Civil Surgeon, Damoh.

FIRST CLASS Military Assistant Surgeon A D C Peirdman, officiating Superintendent, Central Jail, Raipur, is placed temporarily in collateral charge of the Civil Surgeoncy, Raipur.

THE following promotions and reversions are ordered in the Civil Medical Department, Burma —

LIEUTENANT COLONEL T W STEWART, I M S, on return from leave, resumes charge of the duties of a first class Civil Surgeon in Burma, with effect from the 18th September, 1914.

MAJOR E R ROST, I M S, to officiate as first class Civil Surgeon, with effect from the date of his return to duty, *vice*, 12th September, 1914, *vice* Lieutenant Colonel C Duer, I M S, on leave.

THE services of the officer named below have been replaced at the disposal of His Excellency the Commander in Chief in India —

MAJOR G D FRANKLIN, I M S, Agency Surgeon, Southern States of Central India.

MAJOR F A L HAMMOND, I M S, to continue officiating as first class Civil Surgeon *vice* Lieutenant Colonel R H Castor, I M S, on leave

MAJOR P DEE, I M S, to revert to a second class Civil Surgeony, with effect from the 18th September 1914, the date on which Lieutenant Colonel T W Stewart, I M S, returned from leave

THE following gentlemen have been appointed as temporary Civil Assistant Surgeons, in Burma, with effect from the dates specified against their names —

Mr Pianjiwan Manekchand Mehta, L M & S, 2nd September, 1914

Mr Abdul Husen Jivaji Kapasi, L M & S, 1st October, 1914

Mr Parsiam Bulchand Shivdasani, M B, B S, 5th October, 1914

Mr Dadabhoi Dinshaw Vurva, M B, B S, 13th October, 1914

Mr Y Viswanathiah, L M & S, 18th October, 1914

Mr Ratilal Mohanlal Fozdar, L M & S, 24th October, 1914

Mr T L Malkani, M B, B S, 24th October, 1914

Mr Jaganath Vishnu Shrigonkar, L M & S, M R C S, L R C P, D P H, and D T M & H, 27th October, 1914

Mr Narayanrao Marutirao Chivran, L M & S, 8th November, 1914

LIEUTENANT COLONEL F E SWINTON, I M S, Medical Storekeeper to Government, Bombay, is granted 8 months' combined leave on medical certificate, *ie*, privilege leave for 1 month and 4 days and furlough for the remaining period, under paragraph 22, Army Regulations India, Volume II, with effect from the 18th September, 1914 23rd year pension service commenced 27th July, 1914

MAJOR C M MATHEW, I M S, is appointed to officiate as a Medical Storekeeper to Government, with effect from the 18th September, 1914, and is posted to the Medical Store Depot, Bombay

LIEUTENANT COLONEL JOSEPH GEORGE HULBERT, M B, has been permitted by the Most Hon'ble the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the 27th July, 1914 (Army Department Notification No 601, dated the 26th June, 1914, is hereby cancelled)

THE promotion of Major J L Lunham, M B, F R C S I, notified in Army Department Notification No 910 dated the 9th October, 1914, is antedated from 1st September, 1914 to 1st March 1915, *ie*, 6 months accelerated promotion

The following promotions are made, subject to His Majesty's approval —

Captains to be Majors

William Samuel Jagoe Shaw, M D, Dwarka Prasad Gail, M B, F R C S E, 31st July, 1914, *ie*, both officers receive 6 months accelerated promotion

LIEUTENANT COLONEL E R PARRY, I M S, made over charge of the Midnapore Central Jail to Major J B Christian, I M S, on the forenoon of the 26th October, 1914

MAJOR W G HAMILTON, I M S, made over the executive charge of the Presidency Jail to Mr A H W Leonard, the Deputy Superintendent of the Jail, on the afternoon of the 26th October, 1914

MAJOR J M WOOLLEY, I M S, made over medical charge of the Dacca Central Jail to Lieutenant-Colonel A R S Anderson, I M S, on the afternoon of the 25th October, 1914

MAJOR J M WOOLLEY, I M S, made over the executive charge of the Dacca Central Jail to Mr D C Patterson, I C S, Additional District Magistrate, on the afternoon of the 25th October, 1914

On being relieved of his duties as officiating Professor of Ophthalmic Surgery Medical College, Calcutta, Major W V Oppinger, I M S, is appointed to do general duty at the Presidency General Hospital, with effect from the afternoon of the 21st October, 1914

CAPTAIN H B DRAKE, I M S, was posted as Deputy Assay Master, Bombay, with effect from the 5th September, 1914 and his services have since been temporarily replaced at the disposal of His Excellency the Commander in Chief in India, with effect from the 23rd October, 1914, and until further orders

LIEUTENANT COLONEL J J BOURKE, I M S, was posted as Assay Master, Calcutta, with effect from the 10th September, 1914, on being recalled from furlough

THE services of Major S H Lee Abbott, M B, I M S, are placed permanently at the disposal of the Government of the Punjab.

ON relief by Major P F Chapman, M B, C M, I M S, on return from privilege leave, Honorary Captain John Robertson, I S M D, officiating Civil Surgeon, Nagpur, is reposted as Civil Surgeon, Narsinghpur

LIEUTENANT COLONELS S E. PRALL, M B, B S (Lond), I M S, and J H McDonald, M B, C M (Edin), I M S, have been allowed by His Majesty's Secretary of State for India to return to duty

CONSEQUENT on the retirement of Dr Gobind Narayan Das, Dr Shanker Das, sub *pro tem* Civil Surgeon, Pilibhit, to be confirmed as a Civil Surgeon from the 22nd September 1914, but to be on probation for one year and to continue at Pilibhit

THE services of Captain A F Babonau, I M S, officiating Civil Surgeon, Naga Hills, are placed temporarily at the disposal of the Military Department with effect from the 17th September, 1914

THE services of Captain P K Tarapore, I M S, Superintendent, Mandalay Central Jail, are replaced at the disposal of the Government of India in the Home Department

THE services of the following officers are replaced at the disposal of the Government of India in the Home Department —

LIEUT COL T STODART, I M S, LIEUT COL F J DEWES, I M S, MAJOR F V O BEIT, I M S, CAPTAIN H B SCOTT, I M S, CAPTAIN H S MATSON, I M S

THE services of the undermentioned officers are replaced at the disposal of the Government of India in the Home Department —

MAJOR J C H LEICESTER, I M S, MAJOR J J URWIN, I M S, MAJOR G KING, I M S, CAPTAIN W GILLITT, I M S

CAPTAIN R BROWN, I S M D, on return from leave, is appointed to be Civil Surgeon of Sambalpur

LIEUTENANT COLONEL J C S VAUGHAN, I M S, Civil Surgeon of Bhagalpur, is appointed temporarily to officiate, in addition to his own duties, as Superintendent of Bhagalpur Central Jail, with effect from the afternoon of the 24th September, 1914

MAJOR E J O'MEARA, I M S, on return from leave, to be Civil Surgeon and Principal, Medical School, Agra

MAJOR W S WILMORE, I M S, Civil Surgeon, from Agra to Moradabad

LIEUTENANT COLONEL J MORWOOD, I M S, Civil Surgeon, from Moradabad to Shahjahanpur

HONORARY CAPTAIN J T PARKINSON, I S M D, Civil Surgeon, from Shahjahanpur to Haidar

THE services of Captain W P G Williams, I M S, on plague duty, Lucknow, are replaced at the disposal of the Government of India, Army department, with effect from the date on which he relinquishes charge of his present duties

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Mr A Macleod, I C S, Assistant Commissioner, Nagpur, to the executive charge of the Central Jail, Nagpur, *vice* Major F O N Mell, M B, C M, I M S, transferred

MAJOR H J WALTON, I M S, professor of pathology, King George's medical college, Lucknow, on being relieved, to be civil surgeon, Saharanpur

MISS A M BENSON, M D, First Physician, Pestonji Hormasji Cama Hospital for Women and Children, Bombay, has been granted privilege leave of absence for six weeks with effect from the 7th September, 1914

CAPT R E FLOWERDEW, I M S, Port Blair, having been placed at the disposal of the Army, Major J H Murray, I M S, S M O, took over his duties in the Andamans

CORRIGENDUM — From notification No 2678 Est A, dated the 22nd October, 1914, replacing the services of certain officers of the Indian Medical Service at the disposal of His Excellency the Commander-in-Chief in India, omit the name of Major F D S Fryer, I M S

THE services of the officers named below have been replaced at the disposal of His Excellency the Commander in Chief in India —

Lieutenant Colonel J W Grant, I M S (Ben), Major W R Battye, I M S, Major G King, M B, I M S, Captain W Gillitt, M D, I M S, Major M H Thernely, F R C S R, I M S, Major T H Delany, M D, I M S, Major W C Ross, M B, I M S, Major F H Watling, M B, I M S, Major L E Gilbert, M D, I M S

THE services of the undermentioned officers are placed temporarily at the disposal of His Excellency the Commander in Chief in India —

Major J W F Rait, M B, I M S, Major O A Goulay, M D, I M S, Major E O Thurston, M B, F R C S, I M S, Major M Mackelvie, M B, F R C S, I M S, Major H B Steen, M D, I M S, Major D Munro, M B, F R C S, I M S, Captain R H Lee, M B, I M S, Captain J A Shorten, M B, I M S, Lieutenant Colonel T Stodart, M B, I M S, Lieutenant Colonel F J Dewes, I M S, Major F V O'Boit, M D, I M S, Captain H B Scott, I M S, Captain H S Matson, M B, I M S

THE services of Major R McCarrison, I M S, are placed at the disposal of His Excellency the Commander in Chief in India

THE services of the undermentioned officers are placed temporarily at the disposal of His Excellency the Commander in Chief in India —

Major J C H Leicester, M D, F R C S, I M S, Major J J Uwin, M B, F R C S, I M S

THE undermentioned military pupils having passed their final examination to be 4th Class Assistant Surgeons, with effect from the 5th October 1914 —

George Borkman Pigot, Lovell Austian Noel Greenway, George John Boucher, Norman Alfred Michael, Robert Mascarenhas, Stanley Christian Vandewait, Henry Lionel Cloning, Trevelyan Kenneth Clarke Boswell

CAPTAIN GERALD LEWIS COLHOUN LITTLE, M B, has been transferred by the Most Hon'ble the Secretary of State for India to the Temporary Half Pay List, subject to His Majesty's approval, with effect from the 15th November, 1914

CAPTAIN LITTLE entered the service in August, 1908, and the Army List showed him as with the 9th Infantry

THE undermentioned officers have been permitted by the Most Hon'ble the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the dates specified —

Lieutenant Colonel George Yeates Cobb Hunter, 25th October, 1914

Lieutenant Colonel Edmund Wilkinson, I R C S, 13th November, 1914

LIEUTENANT COLONEL HUNTER entered the service in January, 1903, and became Lieutenant Colonel 17th November, 1913. He served and did excellent work in the Jail Department of Bengal and the C P. He went home on 30th March, 1911, and has been on the sick list ever since

LIEUTENANT COLONEL E WILKINSON, I R C S, I M S, was Sanitary Commissioner, Bengal, and went on leave last February. He recently obtained a Sanitary appointment under the Local Government Board, London

LIEUTENANT COLONEL D T LANE, M D, I M S, made over charge of the duties of Superintendent of the District Jail at Ambala to Lieutenant-Colonel A W T Buist, M B, I M S, on the forenoon of the 23rd October, 1914

WILLIAM PATRICK O'CONNOR, M D, M R C S, to be Surgeon Lieutenant, Chota Nagpur Light Horse, dated the 1st September, 1914

SURGEON CAPTAIN WILLIAM BROWN, M D, to be Surgeon Major, Northern Bengal Mounted Rifles, dated the 1st September, 1914

SURGEON-LIEUTENANT OLIVER EDWARD MCCUTCHION, M B, to be Surgeon Captain, dated the 1st September, 1914

THE Governor of Bombay in Council is pleased to make the following appointments *vice* Captain S W Jones, I M S, and Captain W A Morris, I M S, on military duty —

Khan Sahib Nasirvanji Rustamji Vachha, Acting Superintendent of His Majesty's Common Prison and Civil Jail, Bombay, to act as Superintendent of the Ahmedabad Central Prison

Mr F B Plunkett, Jailer, Central Prison, Ahmedabad, to act as Superintendent of His Majesty's Common Prison and Civil Jail and Governor of the Government Female Work house, Bombay

Khan Sahib Kaikhosru Mancherji Chubvala, Personal Assistant to the Inspector General of Prisons, to act as Superintendent of the Hyderabad Central Prison

The Assistant Surgeon attached to the Civil Hospital, Hyderabad, to be in medical charge of the Central Prison, Hyderabad, in addition to his own duties

Mr Raghunath Chaturam Motwani, M B, B S, to hold medical charge of the Ahmedabad Central Prison

His Excellency the Governor of Bombay in Council is pleased to make the following appointments pending further orders —

Assistant Surgeon Aideship Manekji Dotivala, I M S & S, to act as Civil Surgeon, Larkana, *vice* Captain M S Jiani, I M S

Assistant Surgeon Shapurji Manekji Mehta, I M S & S, to act as Civil Surgeon, Kaiwar, with attached duties, *vice* Major B B Paymaster, I M S

Assistant Surgeon Ganpat Damodai Chitla, I M S & S, to act as Civil Surgeon, Nasik, *vice* Major A J V Betts, M B (Lond), I M S

Assistant Surgeon Puroshah Pestonji Balsara, I M S & S, to act as Civil Surgeon, Sholapur, *vice* Captain R F Steel, M B, B Ch (Dub), I M S

Major O R Bakhle, I M S, Civil Surgeon, Sukkur, to hold visiting charge of the Civil Surgeoncy at Jacobabad, in addition to his own duties, *vice* Captain M A Nicholson, M B, I M S

MILITARY ASSISTANT SURGEON A H BRODIE has passed the Higher Standard test in the Baluchi language

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

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BOOKS, REPORTS, &c, RECEIVED —

Burroughs & Wellcome's Photographic Annual
 Anders Medical Diagnosis W B Saunders
 (Lives of J B Murphy (Vol 3) W B Saunders
 Lejar's Emergency Surgery
 Rose & Cutler Surgery (New Ed) Bailliere, Tindall & Cox
 The Indian Museum
 Sanitary Report, Bihar & O riss
 Vaccination Report, Punjab
 Braun's Local Anesthesia (21s) H Kempton
 Hare's Textbook of Therapeutics (21s) H Kempton
 Prichard's Practical Prescribing (Oxford Medical Publications)
 Calot's Indispensable Orthopaedics (21s) Bailliere Tindall & Cox
 May and Worth's Diseases of the Eye (4th Ed), 10s 6d Bailliere, Tindall & Cox
 Bengal Hospitals Report
 Madras Sanitary Report
 Oliver's Lead Poisoning, H K Lewis

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Lt Col H Smith, I M S, Amritsar, Sir L Rogers, I M S, Calcutta, Capt Hornett, I M S, Calcutta, Capt H Stott, I M S, Madras, Lt-Col G G Giffard, I M S, Madras, Capt C H Brodribb, I M S, Major F P Connor, I M S, on Field Service, Major W G Hamilton, I M S, on Field Service, Colonel P Hehir, I M S, Poona, Asst Surgn S Gungul Major O S J Moses, I M S, Calcutta, Lt-Col Birdwood, I M S, Lucknow, Capt H Lack, I M S, Burma Major G C Murlson, I M S, Bombay, Lt Col G G Giffard, I M S, Madras, Dr R Williamson, Poona

Original Articles.

IS THERE A PRIMARY LESION IN LEPROSY?

BY A. GWYTHER, M.B. (Ed.), F.R.C.S. (Ed.),

LT COL, I.M.S.

(On special duty)

In every paper dealing with the vaccine treatment of this disease great stress is laid on the importance of commencing treatment as early as possible in the course of the disease.

In taking down the history of a number of cases, I have been struck with the frequency with which the lesions which are most apparent, especially macules and nodules, appear quite rapidly, within the course of often a few days, although they may be scattered all over the body.

This suddenness of onset would lead one to look on these manifestations of the disease in one of the three ways—

1 As the result of multiple infections such as would be caused by the bites of insects.

2 As of the type of the acute infective fevers with a definite period of incubation of longer or shorter duration. This the subsequent history of the cases does certainly not bear out.

3 As a secondary manifestation of some disease, of the same nature as the secondary rashes of syphilis, and that the primary lesion has been so small and insignificant as to have been overlooked.

It is with a view to proving then that there are manifestations of the disease of an earlier nature than those generally recognised, and with a view to discovering whether these are the primary lesions of this disease that this paper has been written.

I have had the good fortune to have had access in the State Lepet Asylum at Simagai, to the notes on 276 cases taken under the supervision of the brothers Dis A and E Neve covering a period from 1905 to 1914.

In table I I have given a list of the primary lesions, mentioned in the cases occurring between these years.

TABLE I

| | |
|--|----|
| Blister with Anæsthesia Feet | 90 |
| Blister with Anæsthesia Hands | 12 |
| Blister with Anæsthesia Elbow | 6 |
| Blister with Anæsthesia Thigh and Leg | 7 |
| Blister with Anæsthesia Knee | 4 |
| Blister with Anæsthesia Head and Face | 5 |
| Blister with Anæsthesia Site not mentioned | 2 |
| Blister with Macular Eruptions | 3 |
| Anæsthesia Feet | 31 |
| Anæsthesia Hands | 8 |
| Anæsthesia Feet and Hands | 15 |
| Ulcer with Anæsthesia Feet | 21 |
| Ulcer with Anæsthesia Hands | 6 |
| Ulcer with Anæsthesia Nose | 2 |

| | |
|--|----|
| Swelling with Anæsthesia Face | 5 |
| Do do Feet | 17 |
| Do do Hand | 5 |
| Do do Arm | 1 |
| Macules with Anæsthesia Feet and Hands | 17 |
| Macules with Anæsthesia Shoulder | 1 |
| Tubercles and Macules | 10 |
| Tubercles with Anæsthesia | 2 |
| Lacerated Wound with Anæsthesia | 2 |
| Frost Bite and Anæsthesia | 1 |
| Red Patches Feet | 1 |
| Syphilis and Anæsthesia | 1 |
| Pain in Joints with Anæsthesia | 3 |
| Eczema Feet | 1 |
| Alopecia with Anæsthesia | 1 |
| Scabies with Anæsthesia | 1 |
| Fever | 1 |
| Fever with Anæsthesia | 1 |
| Swelling feet with Macular Eruption | 2 |
| Macular Eruption Scrotum | 1 |
| Burning Sensation Hands and Feet | 1 |

Now if we analyse these figures *firstly* as to the *Position* of the primary lesion and *secondly* as to its *Nature* we find—

A That as to the *Position*

1 Feet alone are affected in 57.99% of the cases,

2 Hands alone in 11.23%, and

3 Feet and Hands are described as affected in 12.18%.

So that we see that in 81.40% of the cases the primary lesions are referred to Hands and Feet.

B As to the *Nature* of the primary lesions

a Anæsthesia is described as being present in all but 6.13%,

b That blisters occurred in 46%, and that

c Ulcers which may very probably be the result of blisters which have become infected by streptococci, and broken down, occurred in 11.20%, and if we add ulcers to blisters we find that they occurred in 57.23% of all the cases.

Unfortunately although blisters and anæsthesia occurred together in a very large number of the cases, and although a certain number of cases are entered as "Blister and Anæsthesia" and other as "Anæsthesia and Blisters," there is nothing to guide one as to which symptom appeared first. It is quite possible for an anæsthetic foot, hand, or finger to be blistered as a result of a burn or scald, whereas, perhaps, if the blisters were the first lesion it might have some other significance.

Fortunately the next lot of cases I had access to ranging between 1891 and 1904 had been taken by the brothers Neve themselves, and in these we find a careful distinction between those cases where the first symptoms showed blisters and those where anæsthesia were present first.

In 199 of these cases the first manifestations of the disease are mentioned and these I have analysed in table II.

TABLE II

| | | |
|---------------|-------------------|----|
| Macules | | 14 |
| Anæsthesia | Gluteal region | 2 |
| | Feet | 28 |
| | Neck & Shoulders | 1 |
| | Outer side Legs | 4 |
| | Elbow | 1 |
| | Hand | 3 |
| | Thigh, outer side | 3 |
| | Arms | 2 |
| | Back | 1 |
| Ulcers | Big Toe | 2 |
| | Feet | 4 |
| | Nose | 4 |
| | Hand | 1 |
| Swelling | Feet | 10 |
| | Face | 4 |
| | Hands | 2 |
| Blisters | Ankle | 6 |
| | Knee | 5 |
| | Thigh | 1 |
| | Feet | 30 |
| | Arms | 5 |
| | Outer side Leg | 12 |
| | Elbow | 4 |
| | Fingers | 2 |
| | Hands | 3 |
| Hyperæsthesia | Head and Face | 2 |
| | Hands | 3 |
| | Feet | 19 |
| | Knee | 1 |
| | Arms | 1 |
| | Legs | 2 |
| | Gr. Trochanter | 1 |
| | Shoulders | 1 |
| | Thigh | 2 |
| Tubercles | Face | 5 |
| | Feet | 2 |
| Eczema | | 2 |
| Guinea Worm | Feet | 1 |

Here again as in table I we will study these figures firstly as to the positions and secondly as to Nature

A Position—Here we find *Feet* affected in 52.76 per cent, *Hands* in 8.04 per cent, or total for hands and feet of 60.80 per cent of the cases

What cannot help striking one in looking at table II in this light is how often the primary lesions are in those parts of the body which are most exposed to injury, feet, hands, elbows, knees, ankles, outer side of the leg, and even the neck and shoulders that could be injured in carrying loads

B Nature—*Blisters*, account for 35.67 per cent of the cases, *Anæsthesia* for 24.14 per cent, *Hyperæsthesia* for 16.05 per cent, *Ulcers* for 5.50 per cent, while *Maculæ and Tubercles* amount to 10.55 per cent.

If now we consider hyperæsthesia as a preliminary to anæsthesia, and put these together under the head of nervous lesions, we find that 40.19 per cent of the cases show these symptoms in the earliest stage of the disease, while if we, for the same reasons as are given under table I, add together the blisters and ulcers, we find that 41.17 per cent of the cases are so affected,

I do not think that so far as the nature of the lesions is concerned there is anything to call for any special remark

Let us now analyse the results of table II as compared with table I and see whether we have gained any information we had not got in that table

In the first series, as in the second, our attention has been drawn firstly to *Position*, i.e. the two extremities, where the vast majority of the lesions occurred. But, as I have pointed out above, the results of analysis of the table II have indicated a number of sites which are not referred to in table I, and which I have stated above are all regions which are particularly liable from their anatomical positions to injury, secondly as to the *Nature* of the lesions, table II gives us far more information than does table I. Here we have definite reference to blisters appearing in 35.67 per cent of the cases without any other symptoms, and a reference to table II will show that most of these blisters occurred in regions which are most exposed to traumatism.

The number of cases where *Anæsthesia* is the first sign is much smaller, 24.14 per cent. I have already stated that one would expect it to be more frequent than blisters.

From an analysis of the cases in table I one might conclude that the primary lesion was an anæsthesia of which the extent is unknown, due to an infection of the organism with the *Lepia Bacillus* which for some reason or other affects certain nerves or certain nerve endings. Table II makes one doubt whether this is the case. Here we have a clear history of blisters first, what can they be due to? They certainly are not due to burns and scalds in anæsthetic parts, they cannot be due to nerve lesions either in the nerve above the point where they occur, or in the nerve terminations in the part affected, as, in a very large number of cases, the anæsthesia does not occur till some appreciable time afterwards.

They are much more likely to be due to the irritation caused by the presence and multiplication in the tissues of a non-pyogenic organism and represent one type of the primary infection of leprosy. But this only careful microscopic examination will disclose, and unfortunately this will be difficult, considering the fact that most cases of early leprosy occur in villages far removed from skilled medical aid, that the number of new cases in any one year must be necessarily small, and that this lesion is so small and insignificant as to be almost invariably overlooked. What can anæsthesia mean? This too can only be proved by microscopic examination, but we can guess from evidence I shall give later of the limited nature of this anæsthetic patch, in some cases as definite in size as a sixpence, that it must be an infection of the nerve termination in the skin of the affected part.

To prove the local nature of these two symptoms, apart from a bacteriological test we must get evidence of.

A—Definition of extent which would preclude the possibility of its being a lesion in a central nerve trunk, affecting only a few fibres in the anæsthetic cases—and in the cases of the blister a definition of the exact size

B—To find some traumatism through which infection could be conveyed in the immediate neighbourhood of the lesion

With a view to finding out the position of the primary lesion, its extent, its nature, and the period of the time between it and next manifestation, together with any information I could get as to a pre-existing source of infection, I recorded the cases of 54 patients now in the asylum

Here again the *Nature* of the lesion agrees more or less with those given in the tables I and II, except that the proportion of the cases in which blisters occurred is higher than in those in the other tables. In those cases where maculæ are described as the first symptom the information is not reliable, as they were all very young when they came to the asylum, and could not exactly remember the earliest signs of the disease. Note also that only one of the 54 cases gives a history of Leprous Rhinitis as the earliest symptom. This proportion, about 2 per cent agrees with both tables I and II

Position—In these cases one sees more definitely than one does in table II the fact that the first lesions are ascribed to parts of the body exposed to injury, the knee, instep, elbow, ankle, heel, feet, being most frequently referred to

As to *Extent*, a glance will show how very distinctly in a number of the cases, the primary lesion is circumscribed—in some cases the exact size is specified—in others, it is referred to certain anatomical regions—individual fingers, the ankle, instep, elbow

Unfortunately in these 54 cases there are only 4 in which any indication is given of a previous injury—2 cases ascribing the lesion to fissures between the toes, and 2 of frost bites

Examining again the cases taken by the Brothers Neve to see if we can get any support on the last two points, we find that in only 9 cases has a definite statement of extent been recorded whereas in 18 cases has a predisposing cause been referred to—9 being ascribed to frost and snow, 7 to cracked feet, 2 to wounds

As to the *period* of time between the first manifestation and the general spread of the disease, I can only find records in 36 of the cases included in table II and in 46 of the cases I have recorded

In these I find the secondary manifestation occurring within 2 months in 2 cases—3 months

in 3 cases—6 months in 4 cases—1 year in 18 cases—2 years in 27—3 years in 15—4 years in 7—5 years, in 2—6 years, in 3—10 years in 2

In the notes of the cases taken by me the spread of the disease after the first lesion is stated to be *slow and gradual* in 28 of the cases and *rapid* in 22, while in 18 of the 54 cases there is history of *ignis* between the earliest manifestation and the general spread

It will also be seen that a rapid spread is most frequent in the cases where the secondary manifestations appear within one or two years of the primary lesion, and in the mixed types of the disease, while it is usually slow in the anæsthetic types

CONCLUSIONS

From this analysis of over 500 cases it appears that there can be little doubt that we may fairly draw the following conclusions—

1 That there is in leprosy a primary lesion which appears some considerable time before the generally accepted manifestations of the disease, but are unfortunately so small and insignificant as to have been up to now overlooked

2 That this primary lesion usually takes the form of a patch of anæsthesia, a small blister, or the two combined

3 That it occurs most frequently in those parts of the body which are from anatomical reasons most exposed to injury

4 That there is a definite period of time between it and any secondary manifestation, varying with the type of the disease

5 That there are, in many cases, distinct *ignis*—which are peculiar in being unaccompanied by rise in temperature—between the primary and secondary manifestations

6 That the secondary manifestations appear either rapidly, or slowly and gradually, according to the type of the disease

ÆTIOLOGY

The material at my disposal has opened up many side-lights into the ætiology of the disease. Unfortunately, owing to the shortness of the time at my disposal, I am not able to extract all the valuable information I might otherwise have done from these records. I have, however, been able to work out some details which may be of interest

Heredity and surroundings—In support of this I have been able to get evidence in 263 cases

I have divided these into five classes which are given below, and for reasons to be stated hereafter, have separated the cases of the 240 males from those of the 23 female cases recorded.

| | Male | Female |
|---|------|--------|
| <i>a</i> Only one case—the patient's—in family or village | 167 | 7 |
| <i>b</i> Only one case—the patient's—in family cases in village | 24 | 1 |
| <i>c</i> Numerous cases in family and village | 10 | 6 |
| <i>d</i> Numerous cases in family—none in village | 11 | 9 |
| <i>e</i> One other case in family—none in village | 28 | 3 |

Relationship

| | | | |
|---------|---|----------------|---|
| Father | 6 | Uncle | 6 |
| Mother | 3 | Niece | 1 |
| Child | 2 | Cousin | 1 |
| Sister | 3 | Nephew | 1 |
| Brother | 5 | Brother-in-law | 1 |

Taking the case of *males* it is curious to note that in 167 out of the 240 cases or nearly 70 per cent. of the cases, the patient is the only case in the family or village

In cases of *females* it appears that they are most frequently attacked in those localities where the disease appears to be most prevalent, where there are numerous cases in the family, or in the family and village. It is in only 27 per cent. of the cases that there is the only case in family or village

It will also be noted that leprosy is far less common in females than in males, the proportion here being one female to 10 males

Family Life—There are records of the husbands, wives and children of in all 178 lepers

As to *wives*, I find that 178 lepers and wives, who lived with them for periods varying from 27 years to 3 years

Of these 174 were healthy, one was reported as doubtful, and 3 were lepers, though it is not stated whether they acquired leprosy before or after matrimony. It is quite a common thing here for a leper to take a leper girl as a wife

Husbands—Nine leper women had husbands to whom they bore healthy children, all these husbands are recorded as being healthy, though I can get no evidence of how long they lived together

Children—I find that where only one of the parents was a leper the husband or wife being healthy—143 such parents were responsible for 350 healthy children—in some cases the births being as high as 6 or 7 in one family. In only two instances could I trace any disease in the child where only one parent was diseased

I have records of 9 children, both of whose parents suffered from leprosy—3 of these children were healthy—6 were diseased

KASHMIR STATE LEPER ASYLUM

The usual rule in leper asylums in India is that where a patient is admitted his or her healthy relations are not allowed to live with them in the asylum,

In this asylum the Superintendent has a right to say whether they be admitted or not—and in this respect I may be allowed to give an example of a wife's fidelity and faithfulness to her husband by quoting an instance which has occurred here. A wife fearing that she would be separated from a leper husband, produces blisters by chemical means and assured the medical authorities that these blisters were anæsthetic to prevent her separation from her husband. Can history give any evidence of nobler devotion?

I have made most exhaustive enquiries about this asylum and state shortly impressions I have received.

The staff—Within the last 26 years there have been three medical officers. The first lived there 18 years—his wife and family living in the town, the second lived in the asylum four years with his wife and family. The present medical officer in charge has lived within the asylum grounds with his wife and family for four years. There has been no case among them or any other servants

Dressers—These people have to dress daily the wounds of from 80 to 100 patients in various stages of the disease. I have the history of three of them, all healthy, who have worked for 12, 8, and 7 years respectively in this asylum

I have only come across the case of one dresser who has been affected by the disease, and this one was working in the Sabathu Asylum

On careful enquiry into his case I proved that prior to his appointment as dresser his brother, a sister, and a number of people in his village were suffering from the disease, so that it was more than probable he got his infection in his own village

Servants—In all asylums I have made enquiries and I have only found one servant who has developed the disease—a sweeper attached to this asylum, and here again there is the history of disease, both in the village and the family. His brother and sister were patients in this asylum

Wives—As I have stated above under certain circumstances, and with the approval of the medical superintendent, wives are allowed to live with their husbands in this asylum. Apart from other evidence I have the evidence of a servant, himself a leper, who has for 20 years shown no evidence of the disease, that during his stay in the asylum he has never seen one single case where a wife who has elected to stay with her husband in the asylum has become infected

Children—Here again I have evidence that in the course of the last 20 years there has never been a child born in the asylum, or one who has been admitted free from the disease who has subsequently developed it. This is hearsay evidence, and may not carry weight. I found however a statement—part of the annual report of the asylum for this year giving the condition of all inhabitants of the asylum under the age of 20 years,

This statement which I have reproduced is important in two ways. Firstly as showing that out of 13 children admitted 9 were diseased and only 4 healthy, and of the 12 born and living in the asylum none were infected by the disease. Secondly as showing that unaffected persons can stay for a long period of time—in one case 18 years—without being infected.

SOURCE OF INFECTION

In the light of the facts given above and also of the conditions existing here let us examine whether they throw any light on the sources of infection usually assigned to the diseased.

1. *Food.* (a) *Fish diet*—Of this I cannot speak myself but can quote Dr. A. Neve, who has an intimate knowledge of nearly all Kashmir, who is acquainted with the situation of the infected localities, their customs, food, etc. He assures me that most of the leprosy villages are situated in the upper hills, far away from rivers, and that the food does not include a fish diet, dried or otherwise.

(b) *Eating and drinking together*—(Out of the same platters and vessels) The figures I have given under Heredity, under Family Life, and, last but not least, under the head of the State Asylum, should, I think, effectually remove any thought of infection from that source. Moreover were this a possible source of infection one could reasonably expect to find the primary lesion occasionally on the lips—in the mouth—pharynx, or somewhere in the alimentary tract.

2. *Contagion*.—Here again the facts I have given under the heads Heredity, Family Life, and the State Leprosy Asylum apply. It is only reasonable to conclude that the Leprosy Asylum with a large number of cases of various types, of various degrees of virulence, and in various stages of the disease, however carefully the sanitation were attended to, would be a fruitful source of infection to non-leprosy. And yet looking at the doctors, dieters, servants, to say nothing of the healthy wives and children who share their relations, rooms, often beds, who walk barefooted about the asylum grounds, one would expect to find one single case so infected. I have failed to find one.

Surely if this were a possible source of the disease it is reasonable to expect that a wife living in intimate relation with her husband in an asylum, and bearing him numerous children, would be affected by the disease. As I have said before, there has never been a single such case here.

3. *Infection by insect bites*—The inhabitant of Kashmir has no reason to complain that nature has dealt unfairly with him in the respect of insect pests. They are as far as I can gather as numerous and as active here as in India proper and the insect pests has this advantage, that in

the cold weather with closed doors, want of ventilation, and huddled masses of humanity, suffering from the acute cold, they would have better opportunities than in the moderate climates of India.

Can we get any evidence of spread of the disease by this means? The facts and conditions of life I have mentioned above contradict this. Were these pests in any way responsible for the spread of the disease surely there would be more cases in the families—surely the wives and children of affected persons would scarcely escape, surely the attendants on leprosy would more frequently be affected.

I have unfortunately never had opportunities of examining the various types of insect pests from infected areas, but feel sure that if the disease were due to their attentions, the history of the disease would be far different from what I conceived and that multiple infections would be present instead of a single primary lesion.

4. *Infection through the Nares*—This is by some considered as a possible source of the introduction of infection. Looking through the series of cases that I have recorded, I find that on an average in all these series only 2 per cent give this as a first stage of the disease. From the very large number of the cases I have examined here, at Puri, where there are nearly 700 cases and at Sabathu where there are more than 100, I am inclined to disregard this statement and to consider Leprosy Rhinitis as a late secondary or an early tertiary symptom of the disease.

FINAL CONCLUSIONS.

We have, if we accept the conclusions of the first part of this paper, to examine the question of the *Ætiology* of this disease from two standpoints—those of the primary lesion and of the developed disease.

The Primary lesion as a source of infection is a very probable one, but till the contents of the blister or other primary lesion are examined and reported on bacteriologically, one can express no definite opinion. The only evidence in support of this possibility is negative. What I venture to call “secondary manifestations” appear to be so absolutely uninfected under conditions which ought in the light of ordinary infections to be pre-eminently favourable to the spread of the disease, that one has perforce to look elsewhere for the source of infection.

The developed disease—In the light of what I have deduced above there seems to be so little evidence of direct infection in any way from a diseased person to a healthy one that one cannot help thinking that the disease is one of locality. But this I mean that there must be local conditions of soil-water, or whatever the factor may be, which favour the intensification of the virulence of the disease. Or else that there is a missing

cycle in the life-history of the causative organism which local conditions favour

It is possible that the causative agent of the primary lesion is of the nature of a streptothrix and that the acid fast types found in the secondary stages, or the developed disease, whichever we care to call them, may after all prove to be a sporular development. This only time and further investigation will show

CASES IN ASYLUM

1 *Anæsthesia then Blister*, radial border of right forearm, extensive—one year after spread *gradually*

Wife healthy, lived 3 years Rigors Type Anæsthetic

2 *Blister then Anæsthesia*, left knee cap, size of shilling, 4 years after spread *gradually*

Wife healthy, lived 12 years in Asylum Type mixed Rigors

3 *Blister then Anæsthesia*, right instep, size of sixpence, 2 years after spread *gradually*

Wife healthy, lived 14 years in Asylum, one child healthy Type mixed Rigors

4 *Blister*, inner side right thigh 10 years afterwards Tubercles

Wife healthy, lived 11 years Type mixed

5 *Blister* left thumb, spread 1 year afterwards

Wife healthy, lived 1 year Type Anæsthetic

6. *Eczema*, outer side right shin, spread 6 months after

Wife healthy, lived 3 years Type mixed

7 *Blister*, buttocks, spread 3 years after *rapidly* Rigors

Wife healthy, lived 2 years Type mixed

8 *Anæsthesia*, then blister, spread 2 years after *gradually* Type Anæsthetic

9 *Blister* and Anæsthesia right elbow, spread 1 year after *rapidly*

Wife healthy, lived 1 year Type mixed

10 *Anæsthesia* feet, following fissure between toes, spread *rapidly* 1 year after Type mixed

11 *Anæsthesia* with blister, left heel, size of a rupee Spread 3 years after *slowly* Rigors Type Anæsthetic

12 *Blister*, right ankle, outer side, spread 2 years after *rapidly* Type mixed

13 *Anæsthesia*, right index finger, spread 1 year after Type Anæsthetic

14 *Anæsthesia*, left shoulder, 1 year afterwards spread *rapidly*

Wife healthy, lived 5 years Type mixed

15 *Burning and Pricking* of feet, 2 years after spread *rapidly*

Wife healthy, lived 2 years Type nodular

16 *Blister*, then anæsthesia, outer side right heel, spread *rapidly*. Type mixed

17 *Blister*, then anæsthesia, right shoulder, spread *rapidly* some years after Married leper one child. healthy Rigors Type mixed

18 *Macules* spread *rapidly* 2 years after Married Husband healthy, one child, healthy Rigors Type mixed

19 *Maculae*, right forearm, spread 6 years after *gradually* Rigors

Wife healthy, lived many years 5 children healthy Type anæsthetic

20 *Anæsthesia*, then blister right hand, spread *slow* Type anæsthetic Rigors

21 *Swelling* right hand, spread *rapidly* 2 years after Rigors Type anæsthetic

22 *Anæsthesia*, then blister, right instep, 3 years after spread *rapidly* Wife healthy, lived 3 years, 2 children healthy Type anæsthetic

23 *Blister*, left heel, spread *slowly* 5 years after

Wife healthy, one child healthy Type mixed

24 *Anæsthesia*, then blister, following frost bite, left instep spread *gradually* 2 years after Rigors

Wife healthy, lived 2 years, one child, healthy Type mixed

25 *Anæsthesia*, right thumb, spread *slowly* 4 years after Rigors Type anæsthetic

26 *Ulcer*, inside nose, 3 months after blister and anæsthesia, left foot, spread *slowly* 8 months after Rigors

Wife healthy, lived 4 years, 2 sons, healthy Type mixed

27 *Blister* and anæsthesia, right calf size of a orange, spread *slowly*

Wife healthy Type anæsthetic

28 *Hyperæsthesia*, outer side left foot, about 4 inches in diameter, spread *rapidly* 2 years after Rigors Lived with husband 3 years, 8 children, healthy Type mixed.

29 *Blister*, then anæsthesia above right ankle, 2½ inches in diameter, spread *rapidly* 2 years after Rigors Type mixed

30 *Three blisters* and anæsthesia, right forearm, size of a rupee, spread *slowly* 4 years afterwards Married a leper, one child healthy Type mixed

31 *Blister* with hyperæsthesia, outer side left foot, size, shilling spread *slowly* 3 years after Type mixed

32 *Macules*, face, spread *slowly* 2 years after Type mixed Rigors

33 *Anæsthesia* and blister, outer side right foot, size of a rupee, spread *unknown* Rigors Type anæsthetic

34 *Anæsthesia* and blister, outer side left calf, size of a rupee, one year after spread *rapidly* Type mixed

35 *Blister* then anæsthesia, left foot 3 years after spread *slowly* Rigors Husband healthy lived 6 years 3 children, healthy, later one child leper by leper husband Type anæsthetic

36 *Blister* and anæsthesia right elbow, 3 years after spread *rapidly* Type mixed

- 37 *Blister* and anæsthesia, left elbow, spread *rapidly* duration unknown Type mixed
- 38 *Blister* and anæsthesia, right knee cap, spread slowly Rigors Type anæsthetic
- 39 *Blister*, right instep, spread *slowly* 6 years after Rigors
Wife healthy, lived 3 years Type anæsthetic
- 40 *Hypæsthesia*, right ulna, spread *slowly* 5 years after Type mixed
- 41 *Anæsthesia*, then blister over ulna nerve, left side, 4 inches by 2 inches, one year after spread *rapidly* Type mixed
- 42 *Blister* with anæsthesia, little finger, left hand, 3 years after spread *slowly*
- 43 *Blister*, right knee cap, 2 years after spread *rapidly* Rigors
Wife healthy, lived 6 years with him, since lived 9 years in the home
- 44 *Anæsthesia* with blister, outer side, left ankle, one year after spread *rapidly* Rigors
Wife healthy, after 15 years, lived 5 years together
- 45 *Blister* and anæsthesia, little toe, spread *slowly* 4 years after
- 46 *Blister* and anæsthesia, little toe, right foot, 2 years after spread *slowly* Rigors Wife lived 2 years
- 47 *Blister*, left knee-cap, 10 years after spread *slowly* Rigors Wife healthy, lived 10 years Son lived and slept with him 10 years, healthy Type anæsthetic
- 48 *Blister*, left instep, 3 years after spread *slowly* Rigors
- 49 *Anæsthesia*, sole of foot, ascribed to chilblain, 3 years after spread *slowly* Rigors
- 50 *Blister*, right elbow, 3 years after spread *slowly* Rigors Type anæsthetic
- 51 *Blister*, right shoulder over deltoid, 4 years after spread *rapidly* Rigors
- 52 *Fissures* between toes with anæsthesia, spread *slowly*
- 53 *Blister* right instep, spread one year after *slowly* Rigors
- 54 *Blister*, right elbow, with anæsthesia 3 years after spread *slowly* Rigors Type anæsthetic

List of Patients under 20 years admitted to asylum, March 30th, 1914

| No | Sex | Age | Lepious | Duration | Non leper | Father | Mother |
|----|-----|-----|---------|----------|-----------|---------|--------|
| 1 | m | 15 | Yes | 11 years | | Leper | " |
| 2 | f | 13 | " | 8 " | | do | " |
| 3 | m | 12 | " | 5 " | | do | " |
| 4 | m | 16 | " | 9 " | | do | " |
| 5 | m | 12 | " | 4 " | | Unknown | |
| 6 | f | 15 | " | 5 " | | do | |
| 7 | m | 16 | " | 3 " | | do | |
| 8 | m | 18 | " | 8 " | | do | |
| 9 | m | 13 | " | 11 " | | Leper | Leper |
| 10 | m | 10 | | | Yes | do | do |
| 11 | f | 9 | | | " | do | do |
| 12 | m | 4 | | | " | do | do |
| 13 | f | 15 | | | " | Unknown | |

BORN IN ASYLUM

| No | Sex | Age | Lepious | Duration | Non leper | Father | Mother |
|----|-----|-------|---------|----------|-----------|--------|-----------|
| 1 | f | 4 | | | Yes | Lepi | Lepi |
| 2 | f | 5 | | | " | do | do |
| 3 | f | 3 | | | " | do | do |
| 4 | m | 1 | | | " | do | do |
| 5 | f | 5 | | | " | do | do |
| 6 | f | 2 | | | " | do | dead |
| 7 | m | 2½ | | | " | do | leper |
| 8 | f | 2½ | | | " | do | non-leper |
| 9 | m | 18 | | | " | do | leper |
| 10 | m | 3 | | | " | do | do |
| 11 | f | 9 mon | | | " | do | do |
| 12 | f | 2 yrs | | | " | do | do |

STUDIES IN MALARIA

By HUGH STOTT, M D,

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Surgeon to His Excellency the Governor of Madras

III.

SUMMARY AND CONCLUSION.

(Continued from page 10 January No 1915)

To summarise the results recorded in the preceding chapter —

I THE FEVER ADMISSION RATE

This was reduced in the prophylactic quinine-drinking companies as compared with their abstaining controls by 20 admissions per 1,000 strength Counting primary admissions only, this figure was raised to 26 admissions per 1,000 strength

II THE DEGREE OF SEVERITY OF ATTACK

The following table summarises the effect of the issue of prophylactic quinine on the severity of the attack as judged by the four characters chosen —

| Columns I | II | III | IV | V |
|--|--------------------------------|--------------------------------|--|--|
| Characters | Cos A C E G per 1,000 strength | Cos B D F H per 1,000 strength | Differences per 1,000 strength per annum | Actual yearly saving to Regt if all cases had taken (light) or had not taken (thick) P Q |
| 1 Number of days in Hospital | 7,903 | 7,988 | 85 | 44 days |
| 2 Number of degrees of fever | 14,020 | 13,817 | 203 | 106 degrees |
| 3 Number of ten grain doses of quinine | 5,734 | 6,166 | 432 | 226 doses |
| 4 Number of re-admissions | 520 | 480 | 40 | 21 re admissions |

The figures in columns II, III, IV above are multiplied up to 1,000 strength, the actuals dealt with being only approximately one quarter as large.

The table indicates that the admissions from those companies which took prophylactic quinine spent 85 days per 1,000 strength less in hospital, suffered 203 degrees of fever more, took 432 doses of quinine more before then fever reached and remained at normal, and had 40 re-admissions more than a similar strength of the admissions which had not taken prophylactic quinine previously.

In other words a case taking prophylactic quinine appeared to have as a rule a higher or more continuous fever which, however, responded quicker to quinine, the case remaining a shorter time in hospital but exhibiting a greater tendency to relapse than one which had not taken prophylactic quinine.

Per contra a case which had not taken prophylactic quinine appeared to have a lower or more intermittent temperature curve, requiring more quinine to reduce it to, and keep it at, normal, the case being kept longer in hospital but showing less tendency to relapse than a case which had taken prophylactic quinine.

The effect of prophylactic quinine on the degree of the severity of the malarial attack could not therefore be said to have any markedly beneficial effect. Indeed to some slight extent it appeared to act in a misleading manner, for whilst the fever appeared somewhat greater and more irregular, with a somewhat increased tendency to relapse amongst those who had taken the drug, yet the fever was slightly more easily influenced by the curative quinine, and the case accordingly stayed a slightly shorter period in hospital than amongst the non-quinine drinkers.

There is, however, on the whole no marked difference in the actual figures and too much importance must not be attached to them.

FURTHER OBSERVATIONS.

It could not be said on comparing the temperature charts of the two groups of companies that the issue of prophylactic quinine in one group had to any appreciable extent influenced the subsequent clinical course of the malarial pyrexia, or that the diagnosis was in any way interfered with. An examination of the number of days a patient remained in hospital before the diagnosis of his fever was made and quinine was prescribed, showed that in the case of the 192 charts of the prophylactic quinine drinkers which recorded the necessary data, the diagnosis was made on an average of 2.15 days after admission whilst in 195 similar charts of the control group the time required for diagnosis averaged 2.16 days.

The microscopic examination of blood smears for parasites was not to any practical extent

affected by the issue of prophylactic quinine. In both groups the percentage of parasites found was approximately the same.

CONCLUSION.

After a careful consideration of the results obtained from this year's trial of supervised and controlled prophylactic quinine in the 91st Punjabis, and after due consideration has been given to the cost of the issue* the trouble to the medical and military authorities and the dislike of the sepoys to it, I hold that no case has been made out in the circumstances of this experiment for the use of prophylactic quinine in the prevention of a malarial attack, or in a diminution of its severity should an attack arise.

If prophylactic quinine failed when its issue was as carefully administered as is ordinarily possible in a regiment, can it be expected to succeed when distributed broadcast amongst an undisciplined rural population?

No definite scientific result can be claimed as a result of this trial, for every detail could not be supervised with the necessary essential accuracy. On the other hand, a definite enquiry by special malarialogists appointed to examine the controlled effect of prophylactic quinine in a regiment free from infection and posted to a malarious district would seem to be more than ever an urgent necessity.

PART III

CONTAINING CERTAIN CLINICAL OBSERVATIONS.

I

THE USE AND VALUE OF TEMPERATURE CHARTS IN MALARIA

Temperature charts are of use in malaria by reason of —

(i) the aid they lend to the diagnosis of the fever, and to a certain degree of the variety of parasite present, (ii) the indication they provide of the course the disease is assuming and of the extent of its response to treatment, *i.e.*, then value in prognosis, (iii) the evidence they furnish on points in the natural history of the disease, such, for instance, as the number of varieties of malarial parasites which exist, or on the course of development and retardation of the malarial attack, (iv) the convenience they afford, as living records of a past disease, for noting on them the history, treatment and progress of the attack for future reference.

It is however, under the first of these heads, that the chief help of temperature charts in malaria

* The annual cost of giving prophylactic quinine for 9 months out of a year in ten grain doses twice weekly to a regiment with an average monthly present strength of 650 men is Rs. $\frac{650 \times 20 \times 52 \times 9 \times 10}{12 \times 7,000} = \text{Rs } 725.$

lies. Clinical signs and symptoms are valuable as an aid to diagnosis, but a well-kept temperature curve provides a record of fact uninfluenced by the conflicting mental process of the patient, which so often, for one reason or another, especially in India, render the history of a disease alike difficult to obtain and frequently unreliable. From a considerable proportion of such curves (about 10%) without such valuable aids as the clinical history, and without the aid of the microscope, it is impossible to form a definite opinion on the presence of malarial infection. It is frequently far harder to be sure that any given bout of fever is probably not malarial in nature.

Temperature charts do not seem to be taken full advantage of in diagnosis at the present day, because the typical text book charts are so rarely met with, and suspicion naturally surrounds any deviation therefrom. With the comparatively recent recognition of the value of microscopic blood examination, too, a feeling has to some extent grown up that malaria cannot be diagnosed save by the blood. Invaluable as this examination certainly is, and undertaken as it should be on every possible occasion, it cannot be too strongly insisted upon that the first practical line of diagnosis in disease rests on clinical observations. These observations can and should then be supplemented by the valuable results to be obtained from the application of modern methods provided by clinical pathology.

VARIETIES

Perhaps the earliest division of malarial fevers was into the obvious one of remittent and intermittent forms. And yet this division is but relative. For the state of remittency as shown by any individual chart frequently depends on the periods at which the temperature is recorded. Many charts for instance which would shew a continuous or remittent type of pyrexia if plotted morning and evening, would be distinctly intermittent in character if the temperature were recorded at six or four-hourly intervals. Indeed one chart in my possession though obviously remittent when plotted at 8 A.M., noon, 4 and 8 P.M. daily, yet when recorded hourly showed marked intermission of some one or two hours duration every other day. On this point alone, in this case, this diagnosis was made when all other means for the time being had failed. It should be remembered that charts plotted as above furnish no record of the temperature from 8 A.M. to 8 P.M., this fact if overlooked may lead to some considerable error.

The following table classifies my services on 1,019 cases according to the form of pyrexia then charts presented. The overpowering majority of these cases lead their temperatures to be recorded four times daily—at 8 A.M., noon, 4 and 8 P.M. The minimum standard for inclusion in the

remittent group being such an attack of fever as one in which the temperature fails to reach normal (99 degrees or below) once in any forty-eight consecutive hours.

| Group | Type | Cases | Per cent |
|--------------------------|---------------------------|-------|----------|
| I Intermittent Group | (I) Quartan type | 7 | 4% |
| | (II) Benign Tertian T | 15 | |
| | (III) Malignant T T | 26 | |
| | (IV) Undifferentiated T T | 59 | 6% |
| II Irregular Group | (V) Quotidian T | 378 | 38% |
| III Remittent Group | (I) Irregular type | 100 | 10% |
| IV Single Paroxysm Group | (II) Subintant type | 34 | 3% |
| | | 19 | 2% |
| | | 381 | 37% |
| Total cases in series | | 1,019 | 100% |

The group and types of the above table will now be considered *seriatim*.

1 INTERMITTENT GROUP

The first four types of this group allow of a diagnosis of malaria being made at once from the chart. Moreover the first three types are so typical that not only can the diagnosis be made unaided by other measures, but also the variety of parasite responsible for the infection can be predicted. These four types form some 10 per cent the series.

Type (i)

Two quartan charts are reproduced, they may be taken as types of this class of infection by virtue of the recurrence of a malarial-like paroxysm of some five or six hours' duration every third day, the apyrexial interval averaging some 66 hours.

Type (ii)

Chart 1 illustrates a typical though somewhat attenuated benign tertian curve. The regular recurrence of a malarial-like paroxysm lasting some 12 hours every other day, with an apyrexial interval of some 36 hours constitutes the standard type. The ascent of the temperature curve to the fastigium of each paroxysm, and the post-critical descent are both regular and unbroken in outline.

Type (iii)

A typical subtertian attack is shown on chart 2. The typical paroxysm is quite unlike that of the benign infection, by reason of the length of the attack which averages some 24 hours, the brief apyrexial interval of 12 hours and the peculiar oscillation of the raised temperature. The sudden onset of the latter is shortly followed by a false crisis, and a consequent depression in the summit of the paroxysmal curve. This false crisis is followed by a fresh rise in the fever and a true crisis as in benign infections.

Type (v)

Includes curves with characteristics of both benign and malignant charts. Without a positive blood examination it is impossible to forecast the variety of parasites present.

Type (v)

A very large proportion of this quotidian type may be soundly diagnosed as malaria by the exclusion of septic and other states, and by the aid of the various clinical points associated with malaria. Further considerations of this type are detailed below.

VARIATIONS FROM THE TYPICAL CURVES

Variations from the typical curves of quartan, benign and malignant tertian parasites may be now briefly noted.

(a) Quartan infection

(i) Double quartan infection produce a curve similar to that shown in chart 5. (ii) Triple infections may produce a quotidian fever which cannot be diagnosed save by the microscope. (iii) Irregular multiple quartan infections are said very rarely to become subintant and give rise to a remittent type of fever. No case of such a phenomenon was observed in my series. (iv) Mixed infections will be considered below.

(b) Benign Tertian Infection

Variations under this head may arise in the following ways —

(i) By the prolongation of each individual paroxysm, due perhaps to a large number of sporozoites of a slightly different age being injected at approximately the same time, e.g., several bites from one infected mosquito during the same night so that the chart simulates some forms of malignant tertian infection (Chart 6).

(ii) By a double benign tertian infection producing quotidian fever (Charts 3 and 4). Such a type of infection may conceivably arise in one of several ways. By the inoculation of fully developed sporozoites on two successive days, or by the anticipation or retardation of the original febrile paroxysm by a splitting off from the original swarm of parasites of different broods, in consequence, it may be of some slight difference in their age. Or again, double infection might conceivably arise by the inoculation at the same time of two distinct swarms of sporozoites with a difference of 24 hours in their respective ages.

(iii) & (iv) Multiple and mixed infections producing irregular and remittent types of fever.

(c) Malignant tertian infection

Variations met with under this head are more numerous than in the two former types. Some may indeed be due to mechanical causes, such as the manner in which the routine temperatures

are recorded. The variations are roughly eight in number viz —

(i) A shortening of the individual paroxysm giving rise to a benign tertian type of fever (chart 6).

(ii) An absence of the sudden initial rise to 103-104° at the onset of each paroxysm (chart 7).

(iii) An absence of the precritical pyrexial elevation (chart 8, paroxysm 3).

(iv) An absence of the depression in the curve at the false crisis (chart 9).

(v) An exaggeration of the depression in the curve at the false crisis, producing an apparent quotidian type of fever.

(vi) By a prolongation of individual paroxysm so that an apparent remittent pyrexia is produced (chart 12).

(vii) By irregular (chart 10) and (viii) remittent (chart 12) pyrexias due to multiple and mixed infections.

QUOTIDIAN FEVERS

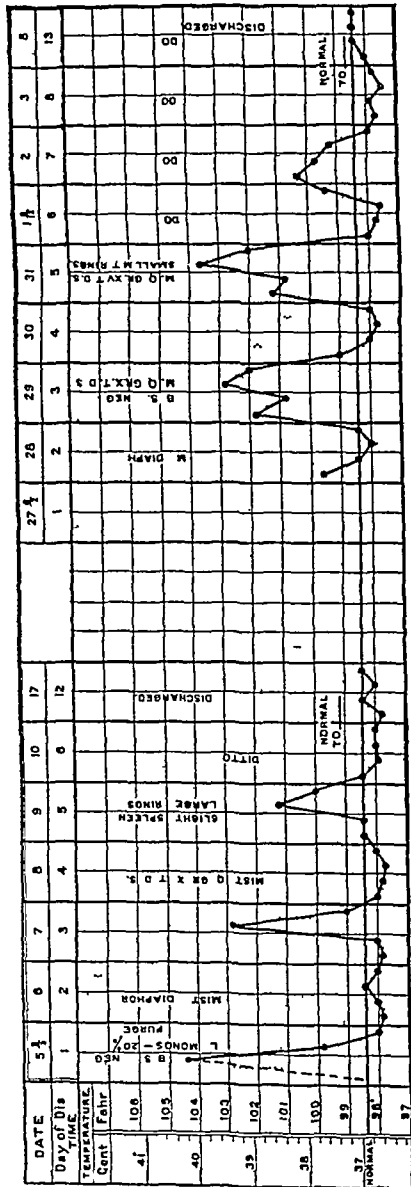
Quotidian fevers due to triple quartan or double benign infections need no further comment.

There were, however, amongst my charts certain curves, the early paroxysms of which were of a subtertian character. At each successive attack, however, the depression at the summit of the curve is seen to deepen until the cleft becomes a complete intermission. The original febrile bout is thus split into two and the fever assumes a quotidian form. At first the spacing between the quotidian paroxysm was such that it could be recognised to which original attack the two new paroxysms first belonged. Later, however, as the fever spontaneously weakened or as the influence of quinine was felt, these two new paroxysms frequently became divided by a longer apyrexial interval, until each daily attack took place equidistant in time to its neighbour.

Such charts may arise from either double benign tertian infection with two successive attacks subintant in character, which finally develop into their normal quotidian form. These undoubtedly found by far the greater proportion. Or occasionally their origin appeared to be in genuine subtertian attacks, which by an exaggeration of the depression above noticed produce a malignant quotidian type of fever. The interest of the latter proposition lies in the support it lends to Koch's axiom of the common individuality of all crescent-forming parasites, which though normally producing a typical malignant tertian chart may under unfavourable influences give rise to attenuated paroxysms simulating a quotidian fever, and is of course in opposition to the Italian teaching of three distinct varieties of malignant parasites, the one tertian and two quotidian in character.

By CAPTAIN HUGH STOTT, M.D., F.R.S.,
Surgeon to His Excellency the Governor of Madras

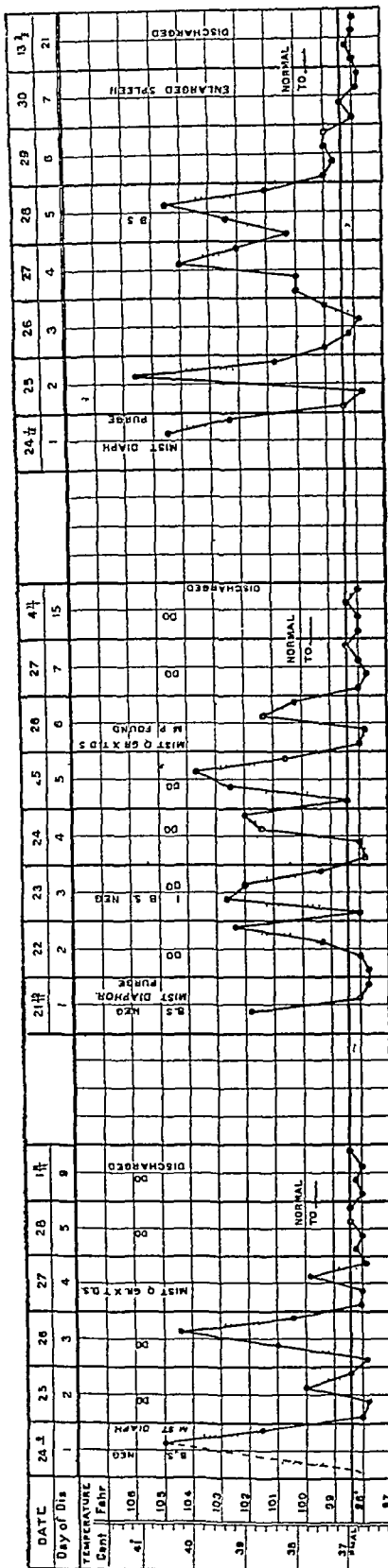
CHART II



Typical paroxysms of B T infection
 Sep J K, No 1157, 92nd P
 Aet 35, service 17 yrs

Typical paroviruses of M T infection
Sep A K, No 3054, 91st P
Aet 19, service 1 y1

CHART IV



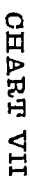
Quotidian (double B T) infection
Sep No 606, Mg S K, Q O S, M
Aet 21, service 3 yrs

Quotidian (double B T) infection
Sep B S, No 1002, 92nd P
Aet 23, service 5 yrs

Double quartan infection
Sep M Y, No 2777, 91st P
Aet 24, service 3 yrs

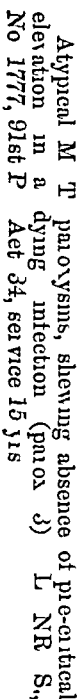
BY CAPTAIN HUGH STOTT, M D, F R S,

CHART VI



Atypical NT paroxysms, showing absence of sudden unbrooken high initial rise (parox 3 & 4) Sep B S, No 2141, 92nd P
Act 23, service 4 v18

CHART IX



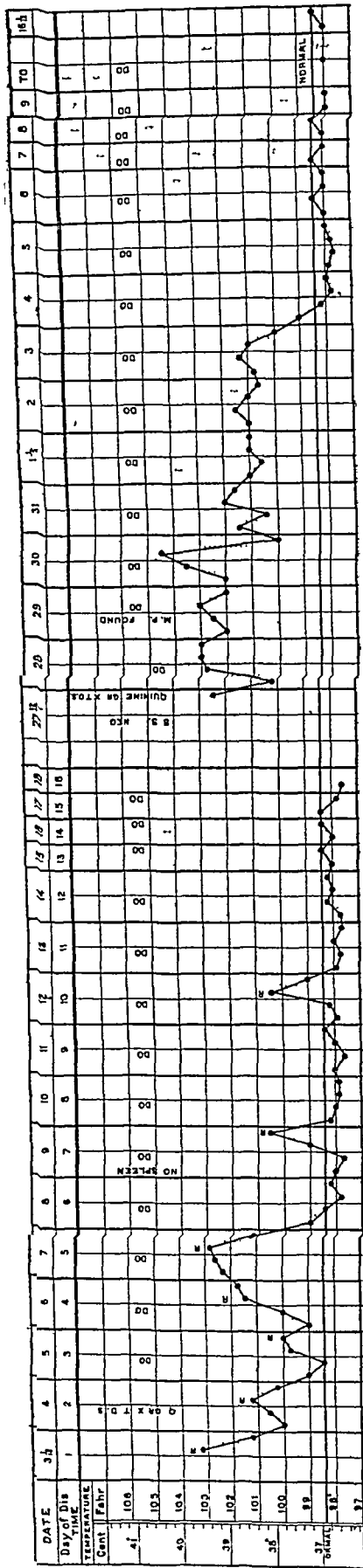
Atypical M T psychosis showing absence of
typical depression at summit of attack Sep
S K, No 2454, 91st P Act 31, service 7 yrs

STUDIES IN MALARIA.

BY CAPTAIN HUGH STOTT, M D, 1 M S,

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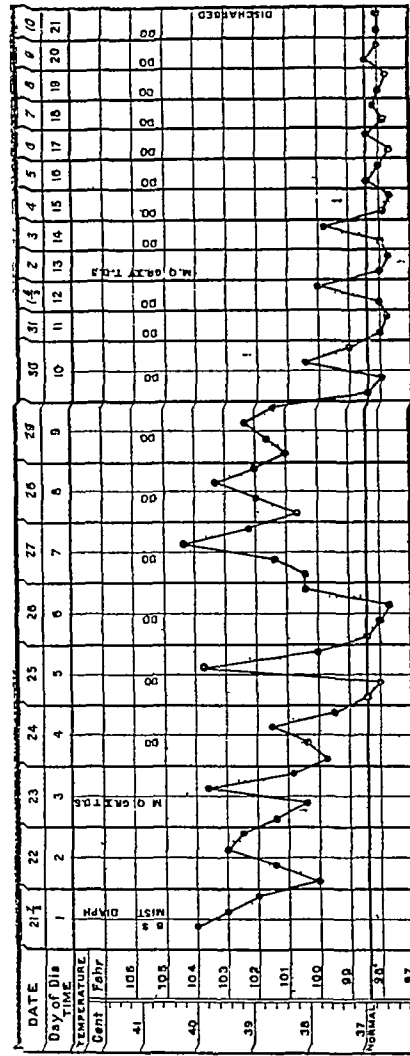
CHART XI



A curve in the continuous remittent fever of malarial infection
 Sep C S, No 1579, 91st P

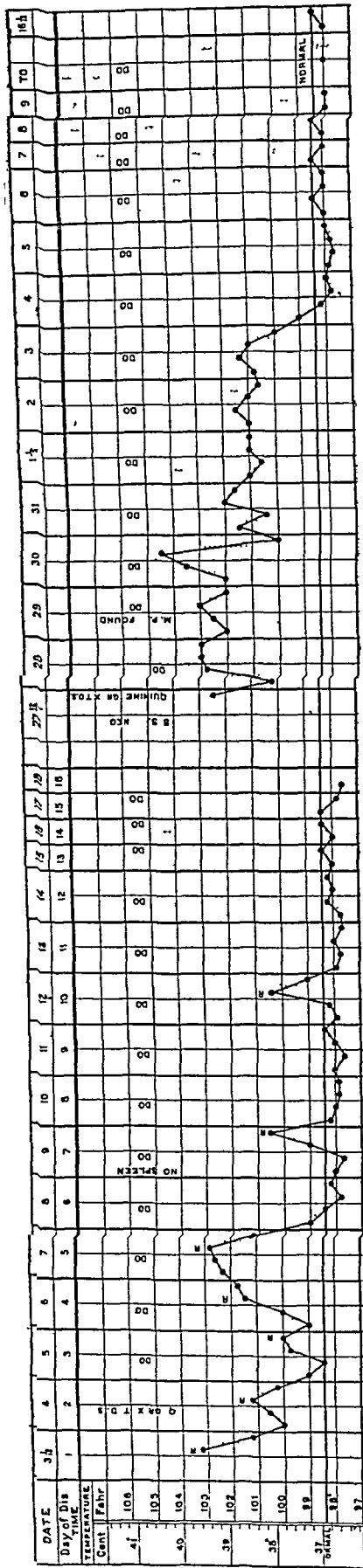
A curve in irregular malarial infection
Sep M R, No 2838, 91st P Age 20, service 2 yrs

CHART XII



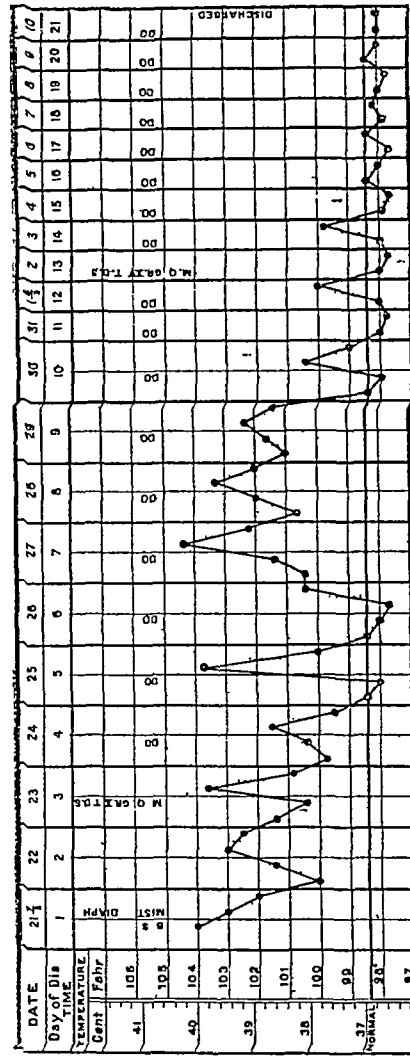
Λ curve in the subacute remittent fever of malarial infection Sep K S,
No 2714, 91st P Age 22, service 4 yrs

CHART X



A curve in irregular malarial infection
 Sep M R, No 2838, 91st P Age 20, service 2 yrs

CHART XII

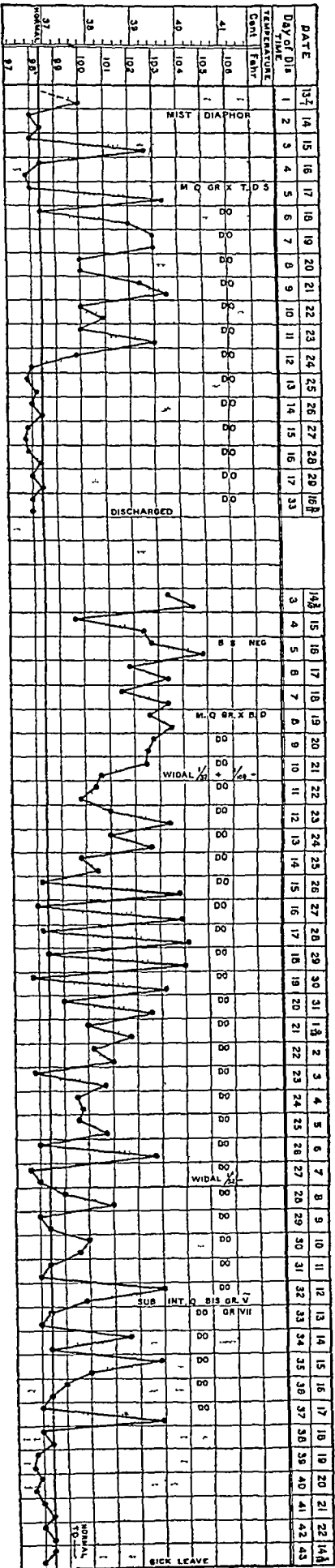


Λ curve in the subacute remittent fever of malarial infection Sep K S,
No 2714, 91st P Age 22, service 4 yrs

STUDIES IN MALARIA.

By CAPTAIN HUGH STOTT, M.D., I.M.S.,
Surgeon to His Excellency the Governor of Madras

CHART XIII



Illustrating a progressive mode of onset of a malarial attack Sep A K, No 2609, 91st P Act 26, service 5 yrs

CHART XIV

Illustrating a progressive mode of termination in a malarial attack Sep —, 83rd W I, I

As regards the blood examination in these cases, in some small ring parasites and in others benign rings were respectively recorded. But at the time these charts occurred blood examination was not being carried out with that attention to detail which so important a point as this demands. The possible explanation however, exists of there being but one form of malignant parasite with a cycle of 24 hours' duration. In an infection with this parasite two attacks of quotidian fever may be frequently subintant, producing that typical tertian curve met with and considered to be typical of malignant infection.

IRREGULAR GROUP

Those variations from the typical benign and malignant curves recorded above can be readily recognized and the parasites associated with them worked out.

It is, however, clear that far greater irregularities in the fever will arise by repeated multiple infection with a similar variety of parasite on successive days, so that several generations are maturing at different periods of the twenty-four hours. Mixed infections with two or all varieties of malarial parasites will produce similar irregularities. Differences in the susceptibilities of the individual may also affect the curve. Such a typical fever will often give rise to considerable trouble in diagnosis. Charts 10 and 11 illustrate such a case.

REMITTENT GROUP

Cases of remittent fever formed only 5 per cent of the series of malarial admissions. Their temperature charts may be roughly divided into two types.

The first or true remittents which formed over two-thirds of the remittent cases shewed either so irregular or so continuous a curve that no indication was evident of the regular recurrence of paroxysms characteristic of malaria (Chart 12).

The second or subintant type shewed to some extent this periodicity in the malarial attacks, and indeed it was due to a marked lengthening and fusing of the individual paroxysms rather than to the results of irregular sporulation as in the former type. The more marked, the more regular and the more typical the remissions, the easier was it to suspect malarial infection (Chart 13).

The following table sets out the frequency distribution of the remittent cases of my series—according to the number of completed days which passed before the treated fever became normal—

| Completed Days | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 | Totals |
|-----------------|-----|---|----|----|-----|---|---|----|----|--------|
| Number of cases | 8 | 9 | 11 | 10 | 8 | 1 | 2 | 2 | 2 | 53 |
| Percentage | 71% | | | | 29% | | | | | 100% |

71 per cent of remittent cases thus lasted for only 5 days or under, the average duration of the remittancy of the fever in each case was 4.6 days, and the longest period noticed was 12 days.

THE SINGLE PAROXYSM GROUP

This group which comprised 37 per cent of the series was of all the one in which errors in diagnosis were the most likely to occur. For excluding those cases in which malarial parasites were found, the remainder were diagnosed on the grounds of a malarial-like paroxysm occurring in a subject known either from his medical history sheet or from his large hard-bake spleen to be the subject of recent or chronic malarial infection. The pyrexia of a certain small number of this group was possibly due to alimentary or some other temporary disturbance of metabolism in men debilitated by chronic malarial disease but it was none the less in some measure an indication of their state of infection.

The majority of these pyrexias probably represented slight cases of relapse.

MODE OF ONSET OF A MALARIAL ATTACK

As displayed by the temperature chart the successive steps in the development of a malarial attack may be most interesting. The onset of infection may perhaps start with some low irregular fever out of which may develop a tertian pyrexia, increasing in height and duration at each paroxysm. The tertian fever may now assume a quotidian form either by the anticipation or retardation of a brood of parasites of the original swarm. The quotidian attacks may now become subintant and a fully developed attack of subintant remittent fever arise. Or so many broods sporulating at irregular intervals may develop by anticipation and retardation that an attack of true remittent pyrexia is the result.

The febrile bout may originate in any one of the above stages or may more rarely go through the whole series (Chart 13). Frequently a remittent attack may commence with a sudden rise in temperature which will continue until the attack has worn itself out or is influenced by treatment.

MODE OF TERMINATION OF A MALARIAL ATTACK

The successive stages which may occur at the onset of a malarial attack may be again passed through in a reversed direction at the time of defervescence. A remittent attack may successively assume a quotidian and tertian type (Chart 14). The individual paroxysms may then diminish in height and duration, and finally be postponed for longer periods than the time required for the full evolution of the parasitic cycle would warrant. Or the remittent attack may reach normal by gradual daily stages of lysis,

or again, the termination may be still more sudden, a critical fall precluding the termination of the fever

(To be continued)

OBSERVATIONS AT SOME HOSPITALS AT HOME

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LIEUT. COL., I.M.S.,

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WHEN we go home or on our travels to other countries, we naturally wish to take the opportunity to clear our minds of professional doubts and difficulties on certain subjects. One of these in my mind was "intestinal stasis," that condition of chronic constipation and toxæmia. What is being done by the average surgeon on this subject? Do they all follow in Lane's footsteps? Do they frequently short circuit? Do they do colectomies? On arrival in London, I went straight to Guy's hospital where I saw Sir Arbuthnot Lane and Mr. Chappel both operate, and with whom I talked on the subject. I saw Lane do two colectomies and one ileo-colostomy with closure of colon in one week. Lane is a master of technique and rapidity. He goes into his dressing room in a hat and frock coat and emerges in a flannel trousers and shirt without a collar. In operating he sits all the time on a stool with an cushion and is thoroughly at his ease.

He wears a small mouthmask and cap. Patterns which seem to me extremely suitable for adaptation to this country because they are very light. In operating Lane opens the abdomen widely from sternum to symphysis. He rapidly explores the right iliac fossa for "Lane's membrane and kink," and for ptosis of the cæcum, and position of the appendix, then he explores the left iliac fossa for shortened mesentery, then the hepatic and splenic flexures for bands and angulation, also the gall-bladder for adhesions, and the duodenum for distension. He lifts up the colon at places to test its mobility and displacement. The examination is done carefully and rapidly. Where there is much displacement of the colon, he at once proceeds to do a colectomy and ileo-colostomy. But when the colon does not appear to be much displaced and when the abdominal wall is not lax and loose he divides bands and does an ileo-colostomy with closure of colon.

The colectomy takes less time than one expects. The steps of the operation are as follows—The ileum is divided between clamps about 4 or 5 inches from the cæcum—the cut ends are cauterized close to the clamps. The proximal end is then at once anastomosed into the

lowest available spot of the pelvic colon. The colon is then removed by tying the meso-colon in sections and cutting beyond the tie. Raw surfaces are then covered over. Before closing the abdomen, several ounces of pure liquid paraffin are pumped into the ileum by a tube and syringe from the rectum. The operation takes about one hour.

How far is the profession following in Lane's footsteps? From conversation with many men on the subject I came to the following conclusions—

1 That "Lane's disease"—that is a toxæmia associated with constipation is becoming a recognized entity. Its signs are well known and briefly are chronic constipation, lassitude, irritability, loss of fat, leaden complexion, lumps in breast like chronic mastitis, together with abdominal physical signs depending on the site of the band or membrane which causes the stasis. If the bands are in the region of the gall-bladder or first part of jejunum, symptoms resembling gastric or duodenal ulcer prevail, if the bands are in the right iliac fossa, symptoms resembling appendicitis prevail, if at hepatic and splenic flexures, dilatation of colon with colicky pains prevail.

2 It still seems there are many surgeons who are doubtful about the existence of these membranes and bands in the abdomen which cause constipation and stasis, but opinion is generally coming round that they are easily recognizable and can be found at definite places if you know where to look for them. Lane and his followers say that the "Lane's ileal band," situated in the right iliac fossa, is the chief membrane, while others say that bands at the hepatic and splenic flexure are the chief causes of stasis. Certainly the bands at the hepatic and splenic flexure seem to cause great angulation of the colon and ptosis of the transverse colon and the diagram in Lane's monograph which I pass round well illustrates this.

In speaking of the membranes and bands as causes of constipation and stasis, one has to remember that the primary cause is an overloaded cæcum and overloaded colon, which get displaced and hang down into the pelvis, its bands then develop, so that there is not only bands, but ptosis of various portions of the intestinal tract, as ptosis of stomach, ptosis of transverse colon, ptosis of cæcum, and ptosis of sigmoid.

The chief places where bands are looked for are—

- (1) From the gall-bladder to duodenum
- (2) From jejunum to transverse colon
- (3) "Lane's ileal band," situated a few inches from end of ileum
- (4) "Jackson's membrane" over the ascending colon
- (5) Band at hepatic flexure
- (6) Band at splenic flexure
- (7) "The last band" in mesentery of sigmoid

Wherever these bands occur angulation and kinking of the gut may occur with distension above.

* Paper read before the Lucknow Clinical Society, Oct 16th, 1914

(3) A good deal of discussion goes on about the cause of the bands or membranes. Lane and his school say they develop to support the gut and prevent its displacement. The membranes as they say "crystallize along the lines of force." Others say the bands are embryonic in origin but are thickened by strain or are abnormally thick or out of position. Mr. Chappel, a strong supporter of Lane, says he has examined many fetuses and could not find a true Lane's membrane. Others like Mr. Pringle have examined many fetuses and found ample evidence of embryonic bands.

Whatever the cause of the bands, it is not the bands only that cause the trouble. For *post mortems* have shown the bands in people dying of other diseases, which bands have never given rise to any abdominal symptom. It is not only bands but loss of tone of gut, *plus* ptosis, *plus* bands, that causes distension, angulation and stasis.

(4) A good deal of discussion goes on about the treatment of stasis and the question you would like answered is: Is the profession at home advising lateral anastomosis and colectomy for most cases of stasis?

The position seems to me to be this—that there are a few leading surgeons who advise and do colectomy, but there are many more who advise exploring the abdomen for the division of bands, and, if possible, fixation of colon or stomach. Most surgeons remove the appendix. Most of the cases of stasis, however, go through a long course of abdominal massage, abdominal exercises, and liquid paraffin before they come to operation. There seems to be no doubt that liquid paraffin is of very great benefit and is extensively used in this disease. I saw one chemist's shop in Dublin with nothing but rows and rows of bottles of liquid paraffin. The paraffin is a lubricant and also aids digestion. After a prolonged course of treatment with paraffin and massage, there are a certain number of cases whose life is still a burden to them with irritability, nervousness, abdominal discomfort and constipation, and who have finally to resort to operation. The profession, I think, now recognise "Lane's disease," and that many cases are benefited by an operation of some sort, though only a few go so far as colectomy.

AS REGARDS THE OPERATION

(1) Most surgeons seem to condemn simple lateral anastomosis of ileum to sigmoid. They say closure of colon is also necessary.

(2) As regards colectomy a few leading surgeons advise it but some are doubtful about the benefit of such an extensive and severe operation. Most surgeons condemn the idea that the big gut is a cesspool, one surgeon speaks of such a term as "cesspool" as a slur upon creation.

Certainly the colon has an actively secreting mucous membrane and is an organ of use.

(3) Most surgeons, when a case ultimately comes up for operation, do several operations and make a selection from the following—

(1) Division of all constricting bands and membranes at places I have mentioned above.

(2) Removal of appendix

(3) Fixation of stomach

(4) Fixation of jejunum

(5) Fixation of caecum

(6) Lateral anastomosis between caecum and transverse colon

(7) Gastro duodenostomy.

(8) Ileosigmoidostomy

There is no doubt that a combination of two or more of these procedures greatly benefit serious cases.

As regards intestinal stasis in India cases are met with occasionally among European or Anglo-Indian ladies, but it is a very rare condition among Indian women. There are two reasons, I think, for this: (1) First, Indian women never wear stays or tight restricting bands round their abdomens, causing displacements of abdominal organs. (2) The Indian diet is largely vegetarian and carbohydrate, and for such a diet, I imagine, a large and active colon is an absolute necessity. I think that all of us who work in India would feel that if our colons were removed, our motions would be very fluid and uncomfortably frequent. I have only operated on one European lady in India who was sent to me for Glenard's disease, that is ptosis of all the abdominal organs, in whom I removed the appendix and a cystic ovary, and she certainly has had greatly improved health since.

I have mentioned this subject of stasis as I thought you would like to know that this disease is thought much of in England, and these bands are well recognised now-a-days and a large number of cases are coming up for operation, and that colectomy with a few leading surgeons is not uncommon.

After a brief stay in London I went to Dublin to do a two months' course of study at the Rotunda. This is, as you know, a large maternity and gynaecological hospital. About 1,500 to 2,000 confinements take place in the hospital annually, and a large number of gynaecological operations are done. Thus their experience is exceptionally extensive.

I will confine my remarks to the technique carried out at the Rotunda, and some observations on gynaecological and obstetric teaching.

Confinements are conducted in two rooms.

(1) A waiting room where 5 or 6 women are generally actually in the early stages of labour or about to commence.

(2) A confinement room where the women are delivered. All nurses and students who enter either of these rooms have to wear gowns and rubber goloshes which are provided. This is a

good rule as it prevents students with mud-stained boots from dirtying the floor

(3) Students are encouraged to make vaginal examinations, but they must comply with a printed notice about scrubbing the hands and they must wear rubber finger stalls which are provided

(4) The Master or Assistant Master visits the waiting room daily, and much instruction is given on diagnosis by abdominal palpation

(5) Before examination great attention is paid to the cleaning of the vulva and repeated washings with sterile soap and sterile swabs are made before any manual or instrumental action

(6) Rubber gloves are put on for the actual delivery of the child

(7) Vaginal douching is not done in normal cases, and only if there has been vaginal manipulation personally in normal cases, I like to give a douche on the third day, as clots and possibly small pieces of membrane are apt to be caught in the lower part of the vagina, and in these decompose, especially if stitches have been put in

(8) About getting up after labour, patients are permitted (if the labour has been normal) to take a few steps on the 4th day and sit in a chair for a few minutes.

The time they remain up, on subsequent days being gradually increased. This may seem rather soon but no harm results from it. Permission to get up must, I think, vary in different cases. A woman who has had a long and difficult labour must naturally have a longer rest in bed, and on this point no hard and fast rule can be made

(9) At the Rotunda in contracted pelvis "the high forceps" operation is distinctly condemned. Unless the head has entered the brim, they teach the forceps will not compress it sufficiently. For the second degree of contraction, from $2\frac{1}{2}$ to $3\frac{1}{2}$ the induction of premature labour is now giving way to pubiotomy and caesarian section. If the latter is decided on, it must be done early, if the former, the head is allowed to mould. If it enters the brim forceps are put on if not then pubiotomy. Certainly contracted pelvis is a more easy subject to discuss than to deal with in practice and the unexpected sometimes happens twice I have recently had cases with an external conjugate of only 7 and anticipated trouble, but both were easy and natural labours. Whether there is trouble depends not only on the brim, but also on the size of the child's head

Many other interesting points arise in the Rotunda teaching but I will only refer to two more, viz, the use and abuse of pituitary extract, and Abderhalden's reaction

Pituitary extract has come as a new and powerful addition to our drugs in midwifery practice. It will probably diminish the number of forceps cases by half. The teaching about it is as follows —

(1) That it contracts the uterus very strongly

and violently for a short period. The contractions are rhythmical and physiological

(2) Thus it is of great use in secondary inertia in multiparae where there is no obstruction and the foetal heart is alright

(3) That it is a useless and dangerous drug for primiparae with rigid os and stiff perineum. In these cases the violent pains do not overcome the rigidity and the uterus get exhausted, and it is dangerous to the foetus

(4) It is the most valuable drug in treating post-partum haemorrhage. It not only contracts the uterus strongly but counteracts shock. It should thus form a constituent of every obstetric bag

(5) It is very valuable in placenta praevia after version has been performed

On the other hand the drug is full of danger to mother and child if used in unsuitable cases. The counter-indications are—

(1) Primiparae

(2) Contracted pelvis or any obstruction

(3) Malpresentation

(4) Eclampsia

(5) Heart and renal troubles

The effect of the drug on the foetal heart is to cause slowing of the heart. Therefore when it is used for inertia the foetal heart should be watched, and if there is trouble forceps applied at once

(2) About *Abderhalden's Reaction*, one hears a good deal of talk. It is the biological test for early pregnancy. The test is not used at the Rotunda for it has not been introduced yet and greater importance is put on the bimanual examination and Hegar's sign. The principle of the test is that small portions of the foetal chorionic villi of the early ovum break off and enter the maternal blood stream. This undoubtedly takes place. The maternal blood then develops an antibody to these foreign substances. This antibody is a ferment which can be tested for. A preparation of human placental tissue (which is got from any recently-delivered woman) is made, and guided with the serum of the patient. If the patient is pregnant her serum will liberate amino-acids which can be tested for. The test is done at 6 weeks to 8 weeks of suspected pregnancy. The test although of great interest, is not considered reliable, and only to be correct in 75% of cases. It is also of interest as the same principle has been applied for the diagnosis of cancer and other localized disease of tissue destruction where fragments may get into the blood stream

As regards the teaching and technique in gynaecology, I will only mention a few points

(1) About operations what struck me most was the operation of myomectomy or enucleation of fibroids. I have always done hysterectomy for fibroids, but at the Rotunda hysterectomy is the exception. Even great big fibrous tumours are cut down on enucleated and the base sewn up with

mattress sutures. A piece of saline gauze is twisted round the cervix during the operation and the hæmorrhage is very slight. After the tumor has been enucleated time is allowed for the uterine muscle to contract (which it does, just as if a small foetus had been delivered) before the sutures are put in. I saw three fibroids enucleated out of one uterus and another fibroid enucleated out of a uterus with a three months' pregnancy and both cases did well.

(2) The operation of repair of the perineum done at the Rotunda is a special one of their own. The essential point is that the anterior edge of the levator ani are brought together by deep stitches. It is a simple and most effective operation, providing a good perineal body. The Assistant Master kindly let me do one under his supervision.

(3) Extensive operations are done for prolapse of the uterus—several operations at one setting. Thus a patient is put up for curetting, amputation of cervix, anterior colporrhaphy, and repair of perineum.

(4) In cases which have passed the menopause, the uterus is fixed between the bladder and anterior vaginal, by one operation called 'The Interposition operation'. It is said to be most lasting and effective.

(5) For Retroflexion, if the uterus can be replaced Alexander-Adam's operation is done. If the uterus cannot be replaced and the abdomen has to be opened Intraperitoneal shortening of the round ligaments and ventral suspension is done.

(6) Conservation operative on the tubes is the rule and small cysts of the ovaries are dissected out, and ovarian tissues left wherever possible.

(7) When the uterus and tubes have been operated on, before the abdomen is closed, the uterus is generally suspended to the ventral wall by two stitches.

8 In operating all the instruments and ligatures are used dry. Instruments are taken from the sterilizer and placed on a small table covered with a sterilized towel. No antiseptic lotions or trays are used. This has many advantages. But in India where we get hot dry winds, full of dust it is probably safer to keep your instruments in lotion.

I have only mentioned a few of the many interesting things one sees and hears discussed, but I have no time to mention more. At the Rotunda I received the greatest kindness and courtesy from the staff. The only fault I found with the place was that it was too popular but if you select the month of June when students are away on their holidays, you will get excellent opportunities for learning and seeing much, a visit to home hospitals and a keen interest in their work brings much reward. It is a little humiliating that the young House Surgeon, attached to a big London Surgeon, seems to know

so much more than you do, and you have to ask him for explanation of things and details. Medical terms and words and names of new diseases slip from his mouth which you have never heard of. On the other hand you are given increased light and opportunities for improving your technique and fresh confidence to go on ahead. Old methods are slipping away and simpleness and thoroughness and commonsense are coming to the front. Improved methods are within your grasp, if you seek them you will find them, and you will get increasing satisfaction in the work given you to do, and in the healing art which occupies so much of our lives.

AT THE CLINIC OF LIEUT. COLONEL HENRY SMITH, AMRITSAR

BY CHARLES F MCCARTHY, M.D.,
San Francisco, U.S.A.

WHILE I had, from what I had seen of the Smith operation in other men's hands, certain fixed opinion of its great utility. I was convinced of being correct in my estimation of its superiority the moment I saw the man at work. To simply state that Lt.-Col. Henry Smith is the greatest operator by the Smith method is not quite saying enough. He is a master of every branch of ophthalmology, as well as general surgery. On my way to Amritsar to see Lt.-Col. Smith, I made the acquaintance of, and spent two months with, Dr. B. P. Banaji, of the ophthalmological section of the Parsi General Hospital, Bombay. Dr. Banaji is one of the men who is proud to be a pupil and disciple of Lt.-Col. Smith. He received me with all the characteristic courtesy of India. I saw everything he had before operation, at operation, and afterwards. He is a beautiful operator and the results I saw left such an impression on me that I felt justified in coming half-way round the world to see Lt.-Col. Henry Smith. That the time has now arrived (and why it has not come sooner is a mystery to me) for the triumphal march of the Smith technique over the entire world in cataract extraction, is a safe and sane prophecy. Between October 19th and November 19th, 359 cataracts were done and I had the happy opportunity to observe all these cases when then bandages were removed, the failures were below 1%. In the 35,000 cases which Smith has operated (a record which stands foremost among leading ophthalmologists of the world) he had loss of vitreous in 5 to 6%. In the 359 cases which I have seen done loss of vitreous occurred in but 10 and that only a bead or two. This series is conspicuous in bringing the loss down to 3% and they were not selected cases. It seems to me that this showing would tend to offset the arguments of the opponents of the intra-capsular method and that the danger of loss of vitreous claimed by them is overrated,

providing the operator is sufficiently skilled. By way of comparison I might say that one morning in last June, in Fuchs' clinic I saw fifteen capsulotomies with loss of vitreous in seven. By this I do not wish to be understood that I consider it other than an unfortunate lot of cases, and may be taken in the light of accident.

We go to London, Vienna and Berlin for general training in ophthalmology (of course I here include the special attention we give to cataracts), we see numerous cases, but I have yet to see the man in Europe that points out the different character and type of lens that we are dealing with, while it is lying snugly in its bed. This is one of Smith's strong points in diagnosis. He is able to tell at a glance what this and that lens will do when it comes to the time of its delivery. It is important to have an intelligent understanding of the kind of lens we encounter in a given case to remove it with the greatest facility. Perhaps by extra-capsular method this may not be so important to measure, but it is of the greatest importance in the intra-capsular. That Smith has worked all this out and tabulated same is not surprising, considering his acute power of observation and the vast experience he has had. If operators in general could take the advantage of a course of training in practical operative work under Smith and thereby learn to acquire his touch, the Daviel Operation would soon have its passing. Of the 359 cases before mentioned I did not see one key-hole or eccentric pupil, his are all U-shaped which of course means no incarceration of iris at angles. There were in this number but two prolapse of iris, and these were in patients who had removed their bandages immediately following operation. As to the relative merits of the two operations there is to me but one conclusion that the Smith operation offers infinitely more than the extra-capsular, namely, being able to operate at any age and with any degree of opacity, children and juveniles excepted. This should appeal to any ophthalmologist when he knows he may operate upon eyes as soon as they fail to longer permit of near work, thus saving the long waiting to maturity. Again you operate your patient while in good health and spirits. No after needling necessary. No daily looking to toilet of eye. No need of atropine, and therefore no invitation to post-operative glaucoma. Complications seldom occur. Iritis is almost an unknown thing (one of the dangers to be always feared in the extra-capsular), and its absence is explained by the complete removal of lens and capsule, the offending thing being the after-capsule with perhaps a certain amount of lens matter, which acts as an irritant setting up the iritis. A large percentage of at the time successfully operated extra-capsular cases are lost from the subsequent iritis. As to the visual results in the intra-capsular there can be no

question. We have no after membrane to obscure the vision. In most cases, other things equal, the eye is as serviceable for near work as it was before the occurrence of the cataract. In the extra-capsular the vast majority require needling later, and even though the results may be fair at the time there is no certainty that this remaining membrane may not upset the vision some time in future. How often have we seen following the old operation the so-called black pupil, later to be chagrined by a dense secondary cataract due to proliferation of cells of this remaining capsule. Again with retained capsule we are liable to have latent attacks of iritis and even irido-cyclitis. Smith has practically ceased to do the Elliot operation for glaucoma preferring to make a large iridectomy. His experience in the past with latent infection following the Elliot operation in his own cases, as well as seeing many after other operators, has led him to be convinced that an iridectomy is to be favoured. He makes his incision farther out in the sclera than I have ever seen it done by any other operator. The way in which he causes the iris to present is nothing short of subtle. To use his own words, "it is a tricky bit of work," and far more difficult to do properly than trephining. I have noticed Dr. Tiffany's paper in *Ophthalmology* (April issue, 1914, Vol X) and have asked Lt-Col. Smith about his visit. He came to Amritsar for two days in mid-winter when nothing ophthalmological was going on. He saw one drawn-up pupil which came back to have it lowered. His account of the early stage of cataract is muddled, as he puts the symptoms of the early stage of cataract as the symptoms of immature cataract and *vice versa*, so much for his knowledge of cataract. Lt-Col. Smith never put the matter in this way. It is true that nothing has been written on the early stage of cataract but what Lt-Col. Smith himself has done, and that this may have escaped Dr. Tiffany's notice. As to Lt-Col. Smith's technique, which Dr. Tiffany objects to, Lt-Col. Smith is one of those men who dare to go their own way. A man who regards, and rightly so, a great deal of present-day technique as merely theatrical and a method of impressing the crowd, and this he sneers at. But as to things in technique which matter there is probably no man more careful. I never saw a man wash out the conjunctival sac properly before. He takes intense care that no instrument which touches the eye shall touch any thing else, and is very particular that they shall not touch the margins of the eyelids, as he believes that they are never sterile.

Smith has perfected a set of instruments for doing his operation, not too many in number, and they meet all possible demands. I have made no attempt to describe the Smith operation as Smith in his book has placed it very

lucidly before the surgical world. Neither have I written this article with the idea of bringing out any new or unusual things. It is merely my observation as one of the workers in the Smith clinic.

A Mirror of Hospital Practice.

THE INDICATIONS FOR GASTRO-JEJUNOSTOMY BASED UPON EIGHTEEN CASES IN THE KASHMIR MISSION HOSPITAL

By A. NEVF, I.R.C.S.F.

It has been quaintly said by Mayo that a gastric patient should have nine medical cures before gastro-jejunostomy is performed. There is a tinge of sarcasm, perhaps, as to the value of these successive cures. If really cured why was not the undertaker called in? But smiling apart, and cured or not the medical procedures to establish the need of an operation are somewhat extensive. I need hardly mention the ordinary clinical methods by which a very dilated or proptosed stomach is recognised. Palpation and auscultation percussion have their value and limitations. The use of the stomach tube and test meals is essential. But it may be misleading even in skilled hands. Some years ago, gastroscopy was in vogue among specialists. But the real gastroscopy is that with the Röntgen rays. It has been systematised during the last few years, and may be relied upon to show—

1 The physical relation of the stomach to the meal from the cardiac orifice to the duodenum.

2 The position of the stomach in the abdomen.

3 The shape of the stomach when empty, except for a little barium and when distended.

4 Its motility.

It has been aptly said that the Röntgen rays revealed a new abdominal anatomy. To justify this claim one need only compare the anatomical drawings of the text-books with the skiagrams of a stomach after a barium meal.

To the Röntgenologist the stomach is not a bag suspended somewhat horizontally in the epigastric region, but it is a tube hanging almost vertically from the diaphragm to the umbilicus in a state of tonic contraction and of a shape which depends upon the amount and position of the food. When food enters a normal stomach it does not drop down at once to the lowest portion but is upheld in the pars cardiaca and in the later stages of gastric digestion the upper two-thirds of the organ are in tonic contraction and the food is held in the pars pylorica.

1 If the food is held up in the pars cardiaca for many minutes and can then be seen trickling down in a narrow stream an ulcer of the con-

tracted part is indicated or an indentation technically called an *incisura*, may be seen or photographed pointing towards the ulcer.

2 If the contraction is circumferential and permanent in the pars media, it constitutes the hour-glass stomach long familiar to pathologists.

3 When contraction of this type occurs in the pars pylorica the body of the stomach becomes dilated, and food is long retained.

4 Atonic conditions are responsible for many downward displacements and for most moderate dilatations.

In such the food rendered visible by the barium or bismuth at once sinks to the lowest level, for the organ is no longer a tube but a flaccid bag. *Gastrioptosis* may supervene, although this is not necessarily associated with atony (Barclay).

In the typical atonic dilated stomach, when the patient is vertical the shadow comes down to or below the hump of the pelvis. And in such cases the upper margin of the shadow is horizontal. This is a not uncommon condition in Kashmir, for in one week I have seen three such cases, none of them, however, requiring gastro-jejunostomy.

Such cases should be watched with the screen at intervals of an hour, and the motility will often be seen to be normal, a light meal passing out in four or five hours.

Pyloric obstruction may depend upon—

(a) organic obstruction by a tumor, or cicatrix,

(b) spasm due to the consistency, or hyperacidity of the food,

(c) mechanical displacement or kinking.

Peristaltic action should be noticed, and if not otherwise evident may be evoked by gentle massage. It is most marked towards the pars pylorica, and if violent is suggestive of obstruction. An immense lot has been done by Röntgenologists during the recent years, not merely studying the movements or positions with the screen, but even taking cinema photos.

Cole, Barclay, Handek and others have done remarkable work. It is however, true that even in cases of gastric ulcer with cicatrization skiagrams may reveal nothing, while in persons free from special symptoms surprising misplacements may be observed, hence the rays are but an additional means of investigation, and must not be interpreted dogmatically, except by men of wide clinical experience.

During the last year I have made large numbers of screen examinations in cases with symptoms of dilatation or ulceration and in some of these the operative findings had been anticipated by the rays. During the last four months we have done four gastro-jejunostomies and in three of them the diagnosis of pyloric obstruction was confirmed. In one the drawing made upon the screen of a marked *incisura* at the middle of the greater curvature was explained by finding an ulcer of the lesser curvature opposite that place.

The practical conclusions may thus be summed up as regards indications *against* operation—

(1) if the stomach after a barium meal does not extend more than an inch below the umbilicus.

(2) if the meal has left the stomach in four hours.

(3) if there are no special indentations of outline nor flecks of shadow, then as far as the Röntgenologist is concerned there are no indications for operation

In several recent cases the stomach was much dilated, but a study of the motility deterred me from pressing for operation. Such cases improve fast with lavage and suitable diet, etc. Our own practice has been decidedly conservative. In Kashmir there is a common form of dilated stomach connected with atonic fermentative gastritis owing to the copious rice diet of the people. This is usually amenable to medical and dietetic treatment. Too often such cases cease attendance long before a cure can be claimed, but on a diet of minced meat and bread they continue to improve.

In only eighteen cases has gastro-jejunostomy been performed, and with two deaths. We usually do the no-loop non-reverse posterior operation. The pyloric obstruction proved in most cases to be due to duodenal ulcer. In one case the pancreas was enlarged, in another there was also a gall-stone, in another extensive adhesions all round, and in one case a carcinoma. There were other cases of carcinoma which were not submitted to operation.

All the cases operated upon were in a very emaciated weak condition. One patient sank on the 9th day, having had much vomiting.

The other fatal case had undergone no less than four operations at his own urgent request. In the first an hour-glass stomach was found and the lower part united to the jejunum. His symptoms were but little relieved, so six weeks later, the stomach was again examined and finding the hour-glass condition accentuated and a kink in the jejunum below the well-healed line of union, another loop of jejunum was united anteriorly with the larger stomach pouch. He thrived for a time, but again pressed for operation lower down, referring his pain to the region of the appendix. So three months later this was explored, but found healthy. A chronic catgut ligature was then applied to occlude the pylorus. Again there was some improvement, but he was an expert in producing vomiting, and still urged surgical relief. Six months later his chief symptoms were due to intense constipation. A bismuth meal was seen to pass quickly out of the stomach by the artificial route, so an ileo-sigmoidostomy was performed, with difficulty, owing to adhesions. He sank however, on the tenth day after.

It is outside the scope of this article to describe the technique of the operation. There is a precision and a simplicity about it that compares favourably with most of the alternative proce-

dures. The whole operation should seldom take over fifty minutes.

Complications sometimes ensue. In two of the earlier cases there was some vomiting at intervals. In one pneumonia gave trouble and in two others a little bronchitis. Usually they have been on plain ordinary diet within ten days.

As to the final results, many have been very satisfactory, for the patients have returned months or years afterwards sturdy and stout to show themselves, in others the local symptoms and digestion improved but general debility remained while others have altogether disappeared from our view. I have examined some with X-rays some time after and noted the satisfactory passage of the food through the new outlet. The operations numbering eighteen in seventeen individuals have been shared by Drs E. F. Neve, Rawlence and myself with the assistance of Drs Clark, Jeffries, Stann and Hoffmann.

SUMMARY.

Gastro-jejunostomy is indicated when there are signs of a chronic ulcer.

(2) Especially when associated with evidence of a dilated stomach.

(3) The X-Ray study of a Barium meal throws great light on the shape position and motility of a stomach.

(4) But it must be interpreted by a broad clinical view of the case.

An operation is not always indicated for an acute ulcer, and but seldom for atonic dilatation and proptosis.

AN INTERESTING SEQUELA IN A CASE OF CHOLERA

By CHARLES MILNE, M.B.,

LT COL, I.M.S.,

Civil Surgeon, Cawnpore

ENGINE-driver H., of the East Indian Railway, had taken his train to Tundla. There he got very ill, vomiting and purging, he was sent back by passenger train and arrived at Cawnpore about 3 o'clock in the afternoon of the 25th April.

I saw him at 5 o'clock, he appeared then to be in the algid stage of cholera, motions every minute as his wife said, skin cold and clammy as the dead. As the E. I. Railway Hospital at Cawnpore is only a hospital in name as far as Europeans are concerned and has not the necessities and accessories for treating a case of cholera, I decided to have him removed to the District Hospital a distance of four miles. To this end I gave him (*pace* L. Rogers) a hypodermic injection of morphia, and he was taken to the hospital, where he arrived at 8 P.M. His condition, though bad, was not dangerous, and I ordered rectal salines to be frequently given, and plenty of water by the mouth. Also I ordered him to take

permanganate of potassium tablets, as prescribed by Sir L. Rogers. He passed the night fairly well, and I saw him at 6 o'clock next morning. I found his pulse still of fair tension, but he had passed no urine for nearly 24 hours. At 10 A.M. his pulse was very low and thready, and as he still had anuria, I gave him intravenously a hypertonic saline injection of 60 ounces. The whole operation was performed while he was unconscious, and he only aroused when I put a very hot cupping-glass to his loins, to relieve the congestion of the kidneys. In the afternoon he passed two ounces of urine and during the night he passed a large quantity, and he was speedily out of danger.

Owing to some trouble with the nursing-staff he was asked to leave the hospital on the morning of the 28th April. I did not see him again until the 2nd May, when I was informed he had passed a large tarry stool. I saw him there and then, he was looking anxious and worried, he had an acute pain over the epigastrium, which pain shot right through to the back. The right rectus was absolutely rigid, felt like a board under one's finger, and it was also hyperalgesic. He had been on comparatively low diet since leaving the hospital, but he was now put on milk and water, and Bismuth 20 grains, and Dover's powder 8 grains, was ordered every four hours. I saw the patient again two days later, there was no difference in the pain, it was still very acute, and his bowels were constipated. He had taken a little bread and butter that morning, as he had felt rather well earlier in the day, and the result was excruciating pain two or three hours after.

I asked Dr. C. A. Fuller to see the patient, and we agreed that there was possibly an ulcer or erosion in the upper part of the duodenum and we could only account for the ulcer by supposing that one of the keratin-coated permanganate pills had landed in the duodenum, and had set up erosion from the caustic action of the solid drug. It has, however, been recently pointed out by Wilkie (1) in discussing the origin of duodenal ulcers, that some definite relationship exists between duodenal ulcers and morbid conditions of the lower bowel. What the relationship is has not been satisfactorily shown, but it is believed to be an action through the blood and the autonomic nervous system. There is some evidence to show that toxic absorption from the colon has a definite vago-tonic influence. It may not therefore require that a permanganate pill should settle in the duodenum to produce the signs and symptoms of a duodenal ulcer such as I have described.

The patient was told to continue a rigid milk and water diet, and the Bismuth and Dover's powders were continued. In addition, a sleeping draught of a preparation of opium was given each night. The symptoms did not readily abate, and he made a very protracted convalescence, the

pain, tenderness, and rigidity lasting for a long time. The pain was of a gnawing or boring kind, and he himself described it without suggestion as a severe "hunger" pain.

In this case it was extremely interesting to work out the probable site of the ulcer, if such it was. James Mackenzie, in his most illuminating book, "*Symptoms and their Interpretation*," shows that if there is an ulcer or other source of irritation in the stomach, two results happen, *viz*, a viscerosensory reflex, and a visceromotor reflex. There are no painful sensations in the stomach itself. An ulcer irritates the terminal filaments of the sympathetic nerves, which in turn send irritative messages to the spinal cord, or as Ross of Manchester (2) very clearly puts it, "irritation is conducted to the portion of the spinal cord, from which the viscus derives its splanchnic nerves, and thence spreads in the grey matter of the posterior horns, whence, by the law of eccentric projection it is referred to the somatic nerves derived from the segment of the cord." There is thus in the cord an area of irritation radiating round the origin of the sympathetic nerves which supply the stomach. These nerves have their origin at the sixth and seventh thoracic segments, and we have a viscerosensory reflex showing as pain referred to the epigastrium, and a visceromotor reflex showing as a rigid left rectus. This rigidity may be so great as to simulate a tumor, and operations have frequently been done on such cases. I myself have attempted to operate in a case of gastric ulcer, but had to abandon the operation owing to the rectus being so rigid that under the deepest safe anaesthesia, it was impossible to relax the muscles. In the case above described, the pain was in the epigastrium—the upper part of the right rectus was rigid, and there was a further, and equally important point. The pain shot right through to the back, where the patient had an exceedingly tender spot, over the 10th dorsal vertebra. This is a not uncommon association of visceral disease, and seems to be the converse of the acute abdominal pain over the stomach occasionally seen in Pott's disease of the spine, and in a basal pneumonia with involvement of the pleura over the diaphragm, before the lung symptoms have developed.

The sympathetic nerve supply to the duodenum is the same as to the liver, gall-bladder and the pancreas, these latter structures, indeed, being but outgrowths from that part of the foregut which goes to form the duodenum. The segments of the cord specially irritated in this case were the 8th, 9th and 10th and it is from these segments that the right rectus is innervated. A very interesting point emphasized by Mackenzie, and very well illustrated in this case was the hyperalgesia of the skin over the rectus, and of the rectus itself. It is now proved beyond doubt that all the abdominal organs are quite insensitive

to pain, any pain which we believe to be in the liver, gall-bladder, or stomach, is undoubtedly referred to the overlying muscles and the very sensitive super-peritoneal layer of connective tissue.

In the case of my patient, he simply could not bear the slightest pressure on the right side of the epigastrium—he winced in a most unmistakable manner, if one's fingers approached anywhere near it.

I think this case is a very interesting example of referred pain, the origin of which was some source of irritation, probably an erosion in the upper part of the duodenum.

Regarding the administration of solid permanganate of potassium in cholera cases my experience has been very slight, but I have heard from several other medical men that after its administration very severe gastritis has been set up which is often somewhat intractable to treatment. The tablets are keratin-coated, and as such, are not ordinarily dissolved in the acid stomach contents, but with severe vomiting such as occurs in cholera it is not unlikely there is a very free reflux of the alkaline duodenal contents into the stomach, and thus the keratin is dissolved. It would be very interesting to know what the experience of most medical men in India is concerning the use of solid permanganate in Asiatic cholera. For myself, I shall for the future use it most sparingly, and put my trust in the Hypertonic Saline injections.

REFERENCES

- (1) Wilkie, *Lancet*, 1914, Vol. 1, page 1466
- (2) Ross, *Lancet*, 1891, Vol. 1

A NOTE ON THE INFLUENCE OF ATMOSPHERIC TEMPERATURE ON SANDFLY FEVER

By W. O. WALKER,

CAPT, I.M.S.

DURING the hot weather in Kila Doshi we have had the usual yearly epidemic of sandfly fever.

Major McCarrison published a very full account of this disease in this journal in 1906, and I shall not here give any details of the fever itself. There is one point in Major McCarrison's account which I wish to amplify, and that is the relation which the daily admission rate of fever cases bears to the daily temperature. Major McCarrison states in his paper that the rainfall has little or no effect on the actual course of the disease once it has commenced.

I wish to show that the temperature (which is dependent on the rainfall) has an appreciable effect. I have prepared a chart of the maximum shade temperatures and the daily admissions.

To appreciate how the admission rate is influenced by the temperature, it has first to be decided what the incubation period is. It is three to five days. This was very strikingly indicated this year when a double company of Guikhas

moved from Madaghat (where there is no fever) into Chitral. As they had marched in over a mountain pass there was no possible chance of infection till their actual arrival in Chitral Fort. They arrived on June 30th and the first two cases were admitted on July 3rd followed by nine next day. There were 46 admissions on the 4th and 40 on the 5th of July. Hence we may reasonably conclude that the usual incubation period is five days and may be three. Now turning to the chart I wish to show that the admissions rate follows the rise and fall in the temperature curve by about five days.

From May 25th to 29th there was a gradual increase of temperature from 90° to 103° and a corresponding increase in admissions from May 29th to June 3rd.

The fall in temperature from 29th May to 2nd June was followed by a fall in admissions from 3rd June to 7th June. Then a rise from 5th June to 8th June in temperature was again followed by a rise in admissions from 10th to 17th June. On June 11th there was a fall in temperature and over the three days 14th to 17th June taken together a fall in admissions. The sudden rise of temperature of June 14th continuing up to June 23rd has its counterpart in a rise in admissions from June 18th to 26th. The very sudden fall of temperature recorded on 23rd June was followed by a fall in admissions 27th and 28th June taken together. The sudden rise of temperature of 25th June was followed by a sudden rise on June 29th in the number of admissions. The epidemic after this falls away as a matter of course as there are few new cases to infect. A few cases occurred through July, August and September a good many of which were second attacks. That the disease is influenced by atmospheric temperature I have endeavoured to show.

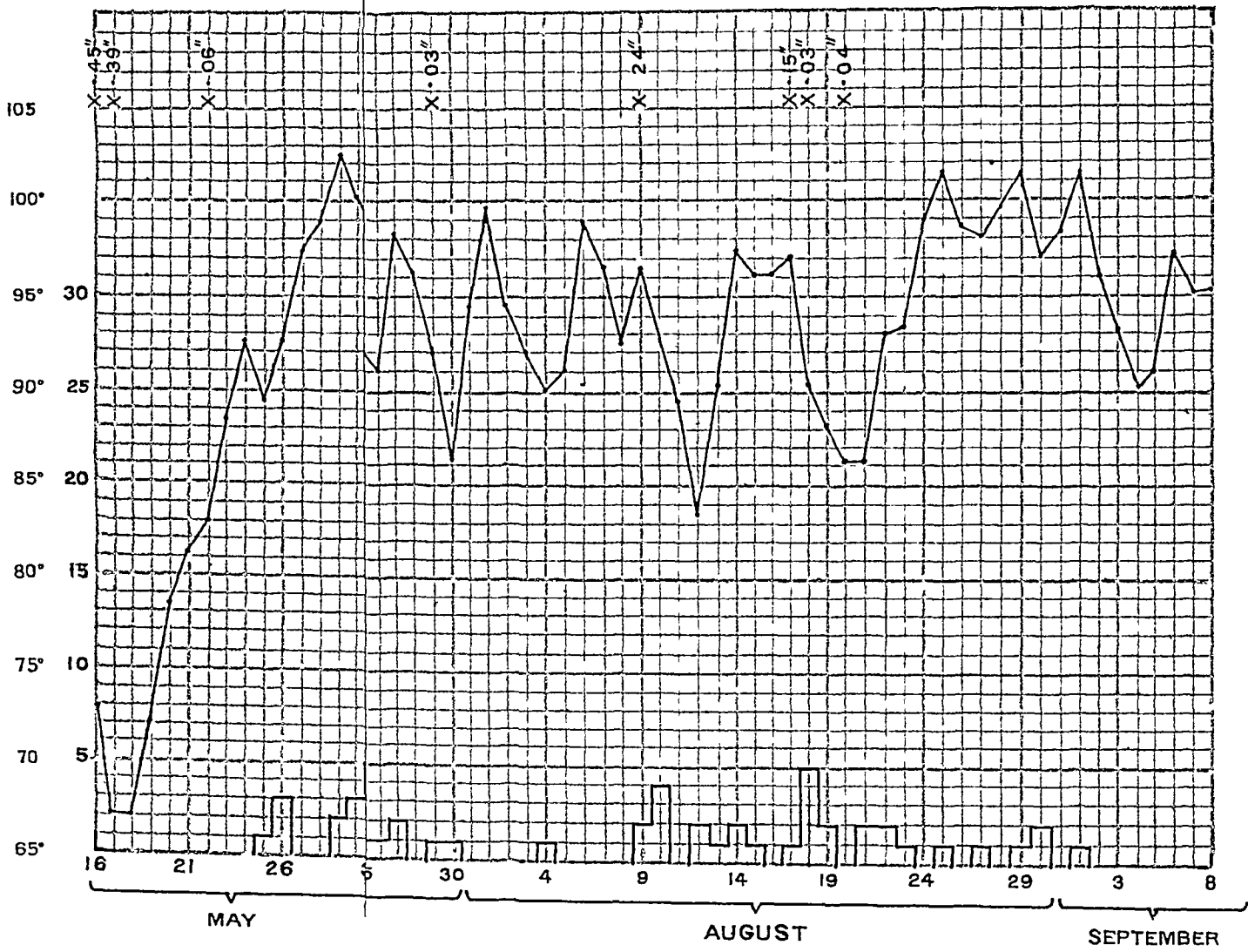
It is also clear that atmospheric temperature is not the cause in itself of the disease but influences the factor or factors in its production.

A very logical conclusion to come to is that on five days (i.e., when the temperature is high) the sandflies abound and flourish and thus the sun has an indirect influence in the disease. This disease has no right to be designated as sun fever.

It was only after a careful scrutiny of the chart which I made that I came to this conclusion. There are no ill-effects following on this fever itself but a very severe epidemic of enteric fever with 30 cases and 9 deaths which occurred here was I am perfectly certain, adversely influenced by the previous epidemic of sandfly fever, which is associated with long slow convalescence.

I have written this account in the hope that it may help towards the discovery of the real cause of this fever. I have made no observations on the prevalence of sandflies here but shall endeavour to do so next year.

OSPHERIC EVER.



Indian Medical Gazette.

FEBRUARY

THE 50TH VOLUME OF THE I M G.

THE present volume for the year 1915 is the 50th volume of the INDIAN MEDICAL GAZETTE which was founded in the commencement of the year 1865, and has appeared without fail every month since. It is, therefore, not only the most important medical paper in India, but the oldest, and has already had a longer life than any other medical journal in India, and is even six years older than the *British Medical Journal*.

The INDIAN MEDICAL GAZETTE, though the oldest and longest lived, was, of course, not the first medical journal in India, as a glance at Crawford's second volume will show*.

The first professional periodical in India was published by the old-established firm of Thacker, Spink & Co., in 1824, and was not so much a journal as a record of the *Transactions* of the Medical and Physical Society of Calcutta. This quarterly record ran irregularly, but continued for 11 years when its name was changed to the *Quarterly Journal*, which also ran erratically till a final volume edited by Allan Webb appeared in 1845.

The *India Journal of Medical Science* appeared under the auspices of John Grant and J. T. Pearson in 1834, but its best known Editor was Dr. Frederick Corbyn who continued the journal till its end in 1843.

In 1835 the Madras Literary Society published a *Journal* which was partly medical and scientific, which ran for about 14 years.

The oldest scientific periodical in India is the *Transactions* of the Medical and Physical Society of Bombay, which still continues to flourish and to publish much of the work done on the Bombay side.

Madras, too, has had several attempts to found a journal, viz., *The Madras Quarterly Medical Journal* for 1839-1843, *The Madras Journal of Medical Science*, 1851-54, *The Madras Quarterly Journal of Medical Science* which ran from 1860 to 1873, when, with the death of its Editor Chipperfield, it came to an end.

THE INDIAN MEDICAL GAZETTE was, as we have said, founded in 1865 and was edited by Surgeon-Major D. Boyes Smith. Boyes Smith was an able man. He had been Civil Surgeon and First Principal of the new Medical Schools at Patna (1874) and at Dacca (1875). In 1880 he was Principal of the Calcutta Medical College, and with Robert Harvey and Kenneth McLeod he founded the Calcutta Medical Society, which lasted till February 1898. Boyes Smith, being dissatisfied with the decision of Government on a matter of hospital management, threw up the service and started independent practice in Calcutta, but it did not prove a success, and he soon retired to England where, in March 1886 he succeeded Surgeon-General W. C. Maclean in the Professorship of Military Medicine at Netley, which post he held till he died in June 1889, and was succeeded by Brigade-Surgeon H. Cayley.

The editors following Boyes Smith were J. A. P. Colles (1867), C. R. Francis (1868), and J. T. Carter-Ross (1869-70). In 1871 Nottige C. Macnamara became Editor (till 1873). Macnamara was one of the most distinguished of several relatives of this name who have entered the service at different periods. He was born in 1832 and entered the service in November 1854, and he held the Chair of Ophthalmic Surgery from 1863 till he retired in 1876. On retirement he became Surgeon to Westminster Hospital, and Consulting Surgeon to the Westminster Ophthalmic Hospital, and Vice-President of the Royal College of Surgeons in 1893 and 1896. He wrote several books, the one on *Asiatic Cholera* which preached the connection between polluted water and cholera epidemics, is a classic, the 'Macnamara filter' was till recently seen in regimental lines in Indian cantonments. His book on *The Eye* was long a standard book and reached at least five editions. The next editor of the INDIAN MEDICAL GAZETTE was Colonel Kenneth McLeod who took it over along with Macnamara in 1871 and continued to hold it with intervals of leave till 1892.

K. McLeod entered the service as first of his batch in 1865, in the first examination after the closure of the service from 1st October 1860 till 1st April 1865. He served as Civil Surgeon in Bengal, and for years was Professor of Surgery at the Calcutta Medical College. After his retirement he was in August 1897 appointed Professor of Military Medicine at Netley in

* D. G. Crawford's *History of the I M S*, Vol 2, p 457

succession to Cayley—a post which he held till the Netley school was abolished in 1905. Colonel McLeod is still alive, in retirement near Netley and still busies himself with reminiscent articles of great interest in the *Caledonian Medical Journal*. He was appointed one of the Honorary Surgeons to the King in 1906.

During various periods of leave taken by Colonel McLeod the editor's chair was occupied by Surgeon-Major (now Colonel) L. A. Waddell, CB, CIE (ret'd), by the late Lieut-Col Alexander Combie, well-known as Surgeon-Superintendent of the Presidency General Hospital and an early writer on the differentiation of the Indian fevers, with him in 1903-04 was associated the late Major D. M. Moir, one of the ablest surgeons in the service. Dr. W. J. Simpson was editor off and on from 1889 to 1897, and about this period the fortunes of the *Gazette* were at their lowest. The first steps in reviving it were taken by Combie and Moir and in 1897-99 by Colonel Waddell. During this period Colonel Waddell being in bad health and likely to revert to military duty handed over charge of the *GAZETTE* for short periods to Lieut-Col F. P. Maynard, FRCS, IMS (Professor of Ophthalmology in Calcutta) and to Major (now Sn) Charles Bedford, and finally to Major (now Lieut-Col.) W. J. Buchanan, who with the exception of periods of leave has been editor since 1899. During his leave Major D. McCay has acted as editor on several occasions.

In Major Moir's time associate editors were appointed for Madras and Bombay, and some years later for Burma, in order to keep the *GAZETTE* in close touch with men serving in those parts of India. It is probable, that when the war shall have ended and medical matters resume their normal course, further changes to bring the *GAZETTE* into closer touch with other Provinces will be made.

Before concluding the above short account of the career of the *INDIAN MEDICAL GAZETTE* and its Editors during the past half century, we must acknowledge our debt to the many contributors who have sent us articles to publish and have helped us in other departments, such as reviewing.

The present editor during the past 15 years has reason to be very grateful to many and valued contributors who have enabled him to keep the *GAZETTE* up to its position as the leading Medical Journal in India.

THE CALCUTTA TROPICAL SCHOOL

WE publish herewith the first subscription list of the School of Tropical Medicine Endowment Fund, with the respectable balance to its credit of over Rs. 1,72,000. Sn. L. Rogers may be well pleased at this substantial support of the great scheme to which he has devoted so much zeal and time.

The site of the Tropical Diseases Hospital is now being rapidly cleared, and the plans for the hospital in special connection with the school are under consideration. The laboratories are practically completed and much furniture is in hand so it is expected that the school buildings will be ready before the onset of the coming hot weather. The main entrance to the school will be on the new 100 feet road which has been notified by the Improvement Trust. Sn. Pardee Lukis has persuaded the Government of India, we understand, to be generous in providing expert teachers and lecturers. The date of opening must depend, like many other things on the end of the war, but all arrangements are being made to start work as soon as is possible.

Calcutta, December 21st, 1914

From The Honorary Secretary,

The School of Tropical Medicine Endowment Fund,
To The Surgeon-General with the Government of Bengal

SIR,—I have the honor to forward herewith the first subscription list of the School of Tropical Medicine Endowment Fund, showing a balance of Rs. 1,72,351-7-0 to its credit. The expenses of printing and distributing the appeal have been met privately, so that the full amounts subscribed, less the Bank of Bengal charges are available.

I desire to draw the attention of Government to the generous donation of half a lakh of rupees by Kumar Bhendia Chandra Sinha of the Paikpara Raj to endow a bed to be called after his nominee. I am greatly indebted to Rai Kailash Chandra Bose Bahadur, CIE, for collecting the large sum of Rs. 35,628. I also wish to express my thanks to the Railway Board for allowing the Companies under their control to contribute substantial sums.

The Committees of the Tea, Jute, and Mining Associations have each supported my appeal for Rs. 20,000 a year for five years, to enable three additional research workers to be employed on investigations of the tropical diseases most prevalent among their labour-forces, and large proportions of the sums asked for have been already promised.

The war will unfortunately delay the opening of the school, but will allow of the Hospital for Tropical Diseases being built in the meantime, as the site has

been already fully acquired by the Bengal Government
A further considerable sum will be required for equipping
the hospital, part of which has already been promised

I have the honor to be,

Sir,

Your most obedient servant,

LEONARD ROGERS,

Lt-Col, I M S,

Honorary Secretary,

The School of Tropical Medicine Endowment Fund

FIRST SUBSCRIPTION LIST OF THE SCHOOL OF
TROPICAL MEDICINE ENDOWMENT FUND

| | Rs | As | P |
|---|--------|----|---|
| Kumar Buendia Chandia Sinha, Paik- para Raj (To endow a ward to be named after the donor's nominee) | 50,000 | 0 | 0 |
| The Bettiah Raj (Through the Hon'ble J R Lewis, Esq) | 25,000 | 0 | 0 |
| Donations received through Rai Kailash Chandra Bose, Bahadur, C I E — | | | |
| Babu Hazarimul Doodwawalla | 20,000 | 0 | 0 |
| Hokum Ibrahim Salajee of Messrs Ebrahim Solomon & Co (To endow a bed) | 5,000 | 0 | 0 |
| Bothram of Messrs Mahram Hunjeemul | 1,100 | 0 | 0 |
| Messrs Tuachand Ghoneshamdas | 1,100 | 0 | 0 |
| Messrs Motilal Radhakissen | 1,100 | 0 | 0 |
| Messrs Gopnam Govindram | 1,100 | 0 | 0 |
| Babu Bilaray Chowdhury | 1,100 | 0 | 0 |
| Ramchander Hairiah | 1,100 | 0 | 0 |
| Babu Ramjeedas Bajoria | 501 | 0 | 0 |
| Babu Johurmul Khemdkar | 501 | 0 | 0 |
| Messrs Sookdeo Rampiosad | 500 | 0 | 0 |
| Messrs Mohunlall Heeranand | 500 | 0 | 0 |
| Babu Ramneerangan Mooiaka of Messrs Sewramdas Mogal | 500 | 0 | 0 |
| Messrs Lalchand Sewcorn | 500 | 0 | 0 |
| Messrs Ebrahim Solomon Salejee & Co | 200 | 0 | 0 |
| Messrs Moosajee Ahaed Salejee & Co | 200 | 0 | 0 |
| Mr Noorobhoy Jeevunjee | 200 | 0 | 0 |
| Mr Ramchand Jetts | 200 | 0 | 0 |
| Mr Goculdas Nunsiaj | 125 | 0 | 0 |
| Mr Tribhovand Huachand | 101 | 0 | 0 |

(Total received through Dr Kailash C Bose Rs 35,628)

DONATIONS OF RS 5,000 TO ENDOW BEDS TO BE
NAMED AFTER THE DONORS

| | | | |
|--|--------|---|---|
| Mr Oosman Jamal (To endow two beds for dysentery cases) | 10,000 | 0 | 0 |
| His Highness the Maharaja of Nepal | 5,000 | 0 | 0 |
| The Hon'ble Raja Rishi Case Law and Raja Kisto Das Law | 5,000 | 0 | 0 |
| Babu Chundy Churn Law | 5,000 | 0 | 0 |
| Babu Ambica Churn Law | 5,000 | 0 | 0 |
| Sir J D Tata | 5,000 | 0 | 0 |
| The Madras Railway Co | 5,000 | 0 | 0 |

Carried over

1,50,628 0 0

| | Rs | As | P |
|---|----------|----|------|
| Brought forward | 1,50,628 | 0 | 0 |
| "A doctor" (To endow a bed for a Kalai- wai patient) | 5,000 | 0 | 0 |
| Eudley Norton, Esq | 3,500 | 0 | 0 |
| The Eastern Bengal State Railway (and Rs 100 annually) | 1,000 | 0 | 0 |
| The Oudh and Rohilkund Railway Co | 1,000 | 0 | 0 |
| South Indian Railway Co | 1,000 | 0 | 0 |
| North-Western Railway Co | 1,000 | 0 | 0 |
| The Burma Railway Co | 1,500 | 0 | 0 |
| Assam-Bengal Railway Co (annual subscription of Rs 40 promised) | 500 | 0 | 0 |
| East Indian Railway (annual subscrip- tion of Rs 1,500 promised) | | | |
| Lady Stephen | 1,500 | 0 | 0 |
| J H Strain, Esq | 1,000 | 0 | 0 |
| J H Ganjee | 1,000 | 0 | 0 |
| Messrs Apcar & Co | 1,000 | 0 | 0 |
| Maharaja of Nashipur | 500 | 0 | 0 |
| Through the Hon'ble Colonel W T Grice— | | | |
| Messrs Smith, Stanistreet & Co | 300 | 0 | 0 |
| Messrs Osler & Co | 250 | 0 | 0 |
| Messrs Hamilton & Co | 250 | 0 | 0 |
| Messrs Garnard & Co | 250 | 0 | 0 |
| Messrs Anderson & Co | 200 | 0 | 0 |
| Messrs Kellner & Co | 200 | 0 | 0 |
| Messrs Walter Locke & Co | 200 | 0 | 0 |
| The Rev Canon E F Brown | 150 | 0 | 0 |
| Through Lt-Colonel C C Barry, I M S, Rangoon— | | | |
| The Bombay Burma Trading Co (annual subscription) | 250 | 0 | 0 |
| The Members of the Burma Edu- cation Syndicate | 80 | 5 | 0 |
| Messrs Bulloch Bros | 50 | 0 | 0 |
| S H Haider, Comilla | 50 | 0 | 0 |
| GRAND TOTAL | 1,72,358 | 5 | 0 |
| Bank of Bengal charges | | 6 | 14 0 |
| | 1,72,351 | 7 | 0 |

Current Topics.

QUALIFICATIONS FOR ACCELERATED PROMOTION

"WITH the approval of the Most Hon'ble the
Secretary of State for
India, the Governor-General in Council is pleased to
notify (with reference to
the notifications noted in the margin) that the
following technical courses of study in India
shall, when undergone by officers of the Indian
Medical Service, be regarded, to the extent noted
against each, as "study" qualifying for accele-
rated promotion to the rank of Major, provided

Military Department
Notification No 149 dated
17th February 1905
Army Department Noti-
fication No 282 dated 7th
April 1911

that the officers pass "with proficiency" the examinations held at their conclusion —

- 1 X-ray course, Dehra Dun, 3 months
- 2 Short bacteriological course at Kasauli, 1 month "

The above notification will be of considerable value in the case of officers qualifying for accelerated promotion. The period spent on these special courses in India will count towards the necessary time to be spent on special study before an officer becomes entitled to be considered for accelerated promotion.

PASTEUR AND AFTER PASTEUR *

THIS volume is the first we have seen of a new series of "Medical History Manuals," under the general editorship of Dr J D Comrie, other volumes in preparation are *Sydenham and Clinical Medicine* by Sir Wm Osler, *The Predecessors of Lister* by A Miles, and *Galen and Roman Medicine* by Dr Comrie.

The first volume by Mr Stephen Paget on *Pasteur and after Pasteur* is one of exceptional interest. Mr Stephen Paget is well-known as a surgeon and as an author, and as the Secretary to the Research Defence Society which is doing such admirable work for humanity.

This manual was published on 28th September, the anniversary of the death of Pasteur. Much which concerns Pasteur has been borrowed from that charming book, Miss Devonshire's translation of M Radot's *Vie de Pasteur*.

The book before us not only gives an interesting account of Pasteur's early struggles, but his great work in chemistry and on fermentation, when he proclaimed the great doctrine "*La vie c'est le germe, et le germe c'est la vie*".

Chapter IV, adorned by an excellent picture of Lister, brings us to a clear account of Lister's application of Pasteur's views to practical surgery and it is full of interest to the surgeon, another chapter gives a good account of Pasteur's great economic work on diseases of silkworms. During the terrible year of the Franco-Prussian War, France was not familiar with Listerism and thousands died who might have been saved. Pasteur worked on and in course of years published his researches on anthrax, chicken-cholera and on Rouget (swine erysipelas), all of which were very prevalent diseases of animals in France.

To the ordinary reader the name of Pasteur is bound up with rabies and dogbite. He began the study of rabies in December 1880, and it was on 6th July 1885 that he first used on man the protective treatment which he had proved on animals. An account of this work and of the anti-rabic institutions all over the world is next given.

So much for Pasteur. After Pasteur came the long race of bacteriologists and chapters are given to tuberculosis, diphtheria, cholera, plague,

typhoid. Haffkine's work is freely quoted as is also Bannerman's on plague. The protective value of Wright's anti-typhoid inoculation is demonstrated. An interesting chapter is devoted to the long, long hunt for the cause of Malta Fever, and to recent work on Malaria and Yellow Fever, and to all the other developments which have followed the great Frenchman's enunciation of the germ theory of disease. We heartily commend the book.

ANTI-MALARIAL WORK IN MALAY STATES

THE report of the Malaria Advisory Board of the Federated Malay States is full of interesting matter showing the way the government there is attacking malaria and the success attained. Before the establishment of the Advisory Board many attempts were made to fight malaria in an unsystematic way and with but temporary or no success. The following extracts will show what is now being done —

The Board aims at the extermination of anopheline mosquitos in all thickly populated centres and, wherever economically possible, in rural areas, and wishes to effect a reduction of mosquitos generally. The means it has decided shall be adopted for these purposes in the light of present knowledge are —

- (a) land drainage and clearing of drained areas
- (b) reduction of breeding in lakes, rivers and other large bodies of water, by removal of weeds and algae from shallow places,
- (c) removal of bottles, tins, boxes, shells or any other waste articles likely to hold water, and the screening of all tanks, wells, or water-containing vessels,
- (d) periodical use of oil or larvicides on breeding places not otherwise dealt with, and, as a matter of the utmost importance,
- (e) efficient upkeep of all anti-malarial works.

At present the only permanent and really satisfactory measure is that under (a) above, supplemented by (b), (c) and (d). It is also, in the majority of places to be dealt with, the most economical. Close study of the subject will, it is hoped, lead to a cheaper and easier means being disclosed, but the scientific work available to the Board at present offers no better solution. The drainage work carried out by the Executive Engineer to the Board and its effect will be referred to in detail later.

The Board took steps to further the distribution of quinine wherever malaria is prevalent and particularly in places far from hospitals or dispensaries. It was considered that tablet quinine hydrochloride was the best form for general distribution, and a large supply was obtained in tubes each containing twenty 1-gram tablets, with a printed wrapper giving directions for its use in English, Malay and Tamil characters and a quantity of these have been sent out to various local authorities for distribution free of charge by penguhal police and others at the discretion of the local authorities. Very favourable reports have been received of its use and it seems to be in great demand.

The Board has been reluctant to advocate the use of plenary powers in connection with anti-malarial schemes until the public generally was better educated in the subject, as much depends on individual effort, and it would not be possible without restrictive laws of an oppressive nature, and a very large staff of inspectors to see that they were obeyed, to obtain much result from the use of such powers. It has now become

* By Stephen Paget, F.R.C.S. London, A & C Black, 1914

obvious however that an Enactment to allow of anti-malarial works being carried out on alienated land is necessary. An illustration of this necessity is the case where a small estate, the owners of which are desirous of carrying out anti-malarial work, is surrounded by other estates whose owners object to such work, where work on the small estate would possibly not be of use unless it were extended into the remainder. A Bill to provide for this and to define more clearly the powers of the authorities in connection with remedial measures against malaria has been under consideration for some time, and it is hoped will be put forward shortly.

To provide for the effective initiation, control and maintenance of anti-malarial work the Board in 1911 recommended that local Anti-Malaria Committees should be appointed for districts by the residents in each State. These have been appointed in a few cases only, and the Board acknowledges the active interest displayed by some of the Committees. It is hoped that local Committees will be appointed in all districts and that they will take full advantage of the large opening for extensive and thorough measures made available by Government and of the services of an increased executive staff attached to the Board.

The anti-malarial drainage work carried out by the Executive Engineer to the Board at Kuala-Lumpur will now be referred to in detail. The history of the work in Kuala-Lumpur and the reasons which led the Board to decide on thoroughly dealing with a particular area were reviewed at length in the Medical Report of 1912. It may with advantage be re-stated however that certain anopheline mosquitos breed only in certain types of country, and in a general way it has been found that while in flat land open drainage and clearing of jungle may get rid of the pathogenic types of anophelines usually found there, only subsoil drainage is, as a general rule, successful in hill country.

The reasons for this do not lie in any particular virtues possessed by earthenware pipes but in the fact that an open drain or stream in hill land is a suitable breeding place for certain mosquitos owing to the pools of water and wet patches of ground which form in their channel and along their sides although there may be considerable current of water in these pools. Anopheline mosquitos have not the characteristics of trout nor are they able to breed in water moving with a high velocity in a channel with edges as smooth as an earthenware pipe because then larvae cannot obtain food in such water unless it is held up by obstructions. The problem of anti-malarial drainage was not to cause water to flow out of sight but to cause it to move in such a way that it did no damage to its channels, and to drain land so that no pools nor wet ground were left.

Flat land and swamp drainage presented no technical difficulties, and it is flat land estates near the Coast which form the exceptions to the general failures mentioned in paragraph (2) above, where draining and clearing over a sufficient area have proved to be entirely effective. Fortunately in these places good drainage is essential from a purely agricultural point of view, and this happens to entirely coincide with the measure best calculated to abolish malaria.

The subsoil drainage of ravines in hill land economically was an unsolved problem, and a most important one, as upon its successful solution depended the application of drainage as a radical anti-malarial measure to hill land. As stated in the 1912 report this problem was solved and the experience gained made it possible to carry out such work with a certainty of success. Work has since been done in precipitous country which presented extraordinary difficulty at a cost remarkably low, and the Board can now unhesitatingly state that thorough drainage can be applied to

any type of land economically with a certainty of success if it is done by those having the necessary experience.

The results obtained are most satisfactory and demonstrate in a striking manner the advantage of anti-malarial drainage well carried out. Unfortunately the results are still affected by the continued existence of four large swamps, known to breed anopheline mosquitos, where filling work is in progress under the Public Works Department and which were all in a very bad condition from a malarial point of view at the close of the year. The malarial sickness remaining in town may fairly be attributed to these swamps as it is in their neighbourhood that cases now occur. A chart is attached which shows the true total death-rate, the true malarial death-rate, and the rainfall monthly for the years 1907 to 1913, inclusive. The table below gives the true total death-rate and the malarial death-rate for each year —

| Year | 1907 | 1908 | 1909 | 1910 | 1911 | 1912 | 1913 |
|-------------------------------|------|------|------|------|------|------|------|
| True death-rate per 1,000 | 37.9 | 43.7 | 32.3 | 30.3 | 39.4 | 36.7 | 35.5 |
| Malarial-death-rate per 1,000 | 9.7 | 10.7 | 7.7 | 9.8 | 9.9 | 5.8 | 4.2 |

It was at the end of 1911 that the work done was first completed thoroughly enough to affect the health of the area drained, and all work done since has been equally thorough. The results are evident from inspection of the chart, the malarial death-rate falling, notwithstanding an increase in death from other causes, from an average of 9.56 per 1,000 for the five years 1907 to 1911, inclusive, to 5.8 in 1912, and 4.2 in 1913. On the assumed population of 56,450 for 1913 (last census, 1911) this means a saving of 302 lives in 1913. Malaria, as a rule, does not prove fatal except after many attacks, and this saving in lives, therefore, represents an enormous reduction in sickness.

While malaria can and will be practically eradicated from Kuala-Lumpur, the death-rate from malaria will probably always be significant. All persons who have been in the town for a period of one month are included in the total used for obtaining the true death-rate, and sick persons living outside usually come into town if sickness continues for long, this custom will always make its mark on the malarial death-rate.

RHINOSPORIDIUM KINEALYI.

The Practitioner (November, 1914) has an interesting article by T. S. Thumuthi, of the Madras Medical College on the sporozoon parasite, first described by, and named after, Lieutenant-Colonel F. O'Kinealy, I.M.S.

The sections of this small pedunculated papillomatous tumour were first exhibited by O'Kinealy in 1903 at a meeting of the Laryngological Society of London. It was microscopically examined first by Lieutenant-Colonel J. C. Vaughan, I.M.S., then Pathologist in the Calcutta Medical College, and subsequently its clinical features were described by Major T. B. Kelly, I.M.S.

Dr. Murchin and Fantham made a study of the parasite from O'Kinealy's specimen. Since then it has been recognised as not uncommon in Madras by Dr. Nair, and in 1906, at the Madras College, Major H. Kirkpatrick, I.M.S., discovered the sporozoon in a conjunctival polypus and Captain A. C. Ingram, I.M.S., demonstrated its presence in a papillomatous growth on the penis, and subsequently in other situations.

Dr Trumuiti has examined and reports on the fifteen specimens in the Madras College and gives admirable illustrations of them in the *Practitioner* article above referred to.

The clinical features are a soft polypoid exceedingly vascular growth, the smaller ones like a raspberry, of deep red or pink colour, the larger growths are flattened or oedematous. They are very friable and bleed freely and there is in the nose a very distinct tendency towards recurrence. Dr Trumuiti gives an excellent account of the development of the Rhinosporidium and its life history. Indeed, his whole article is to be commended to all interested in the subject in India.

THE CHOICE OF A CATARACT OPERATION

MR ERNEST E MADDOX, of Bournemouth, read an admirable paper at the Aberdeen Meeting of the B M Association in July last on the choice of a cataract operation. He discusses the matter from the following five points of view—safety, visual result, beauty of eye, brevity of procedure and fewness of operative interference.

We can only here give a few extracts to show Mr Maddox's view of what he very quaintly calls the "Indian-Smith operation."

Few will dispute that the extraction of cataract is the most interesting subject in ophthalmology, and we now arrive at its most interesting phase, approaching our ideal, viz, *complete extraction*. Every other operation is partial, since it leaves some cortex behind.

The lens in its capsule has been

Thumbed out (Sharp)

Pricked out (Rechlei, 1776)

Corkscrewed out (Arneemann, 1801)

Zonulatomed out (Lucca, 1866, Andrew, 1883, Girdemgo, 1912, and Nesfield)

Spooned out (Pagenstecher, 1866, MacNamara)

Vectised out (Higgins)

Levered out (Cannstadt, 1870)

Hooked out (Borysickiewicz)

Dragged out by its capsule (Tison, 1871, Landesberg 1878, Stanculaneau)

Sucked out (Hulen)

Reclimated out (Basso, Fox, 1907, Savage, 1910)

Torsed out (Webster Fox, 1907, George Powers, 1910, Stroud Hosford, 1912)

Squeezed out (Mulrony)

Tumbled out and driven out

Perhaps a better name for the last two would be "Jullundued out." There surely are not many other modes to be tried. Out of all this list the Jullundui operation is the only one I have tried. It is probably the best to date, and certainly it is the one that has been done on the largest scale.

I have left its description to the last because at its present stage it can scarcely be recommended for general adoption in place of the less ideal but safer operations we have considered. It is waiting for some finishing touch or some further flash of genius to place it beyond the danger line and adapt it to the white races. No one has done so much for it as Lieut-Col Henry Smith, R.M.S., and some of his contributions will remain of permanent value whatever final shape the operation may take. Already he has made it a great boon in India, where patients cannot return for a needling, and where the climatic and social conditions hasten the degeneration of the lens faster than that of the blood

vessels, so that the latter retain their elasticity at the time of operation.

Among white races cataract develops much later in life, and more from toxic causes, the blood being less purified by simple diet and perspiration, so that the blood vessels are more friable.

I confess to the charm of the operation, given a perfect assistant and a suitable eye. Even should vitreous be lost, though the healing is slower, the danger therefrom is small.

Preliminary rotation of the lens about its antero-posterior axis as introduced in America, by means of a cystitome (Powers and Webster Fox), and in England by a dissection needle (Stroud Hosford) is still on its trial, and may perhaps be worth choosing for certain classes of cataract in which the capsule is tough, or the lens of suitable consistence.

No operation which picks the capsule, thus favouring its rupture, is so ideal as the Jullundui method, which leaves it intact. Neither is Stanculaneau's plan of withdrawing the lens by pinching its capsule.

Elschnig's remark that the Indian-Smith operation "Is an exceptional procedure from which the operator will derive more pleasure than the patient" though greatly overdrawn, has just this grain of truth that it is a delightful operation for the well-assisted surgeon, affording more scope for skilful manoeuvring than probably any other in the whole of surgery, and an ordinary operation seems tame after it. But the patient's view of the matter may differ. The beautiful black pupil undefiled by a particle of cortex, which delights the surgeon's eye at each dressing, is not visible to the patient. He only proves that the after-treatment of this new-fangled eye is more unsightly and lengthy than that of its capsulotomy fellow, and when it is first opened he cannot see so well, for the sight is slow in coming. It is true he may be told that in a year's time the intra-capsular eye may be considerably the better of the two, but that, though true, seems to him a bird in the bush.

Some of Col Smith's most enthusiastic pupils speak as though the broom at the masthead of India were going to sweep the classical operation everywhere into the sea, but the fact that the broom has already got a good deal hung up in America, where the fullest enquiries have been made, and where all new procedures receive enthusiastic and unprejudiced trial, should make us advance with the caution of Red Indians.

The healing of the Indian-Smith incision requires a long convalescence for not only is the incision larger than for any classical operation (and the demand on healing increases far more than *pari passu* with the size of the incision) but the wound is further from the blood supply. To this is added the squeezing of the cornea, ciliary edge, and vitreous, which require the bruised elements to be removed and replaced by fresh living growth. No wonder the busy workmen are in evidence in the shape of leucocytes and wandering cells, which create turbidity of the media for a time, and doubtless account in large measure for the imperfect vision regained at first.

Three things about the Indian-Smith are most noteworthy: (1) The ease with which the lens can be extruded. (2) The extraordinary mobility of the iris in spite of the pressure required. (3) The efficiency of the Jullundui method of controlling the orbiculars.

The weakest point of the Indian-Smith is that it is essentially a two-man operation, in which success depends on each doing his part perfectly. It is always a misfortune to be entirely dependent on a second hand, especially when the regulations of hospitals permit of no elasticity in the choice.

For immature, uncomplicated cataracts, between the ages of 35 and 70, the benefit of having no possible trouble with an after-cataract makes some intracapsular method worthy of the deepest consideration, but before

deciding to do an Indian-Smith, the following questions should be answered —

- 1 Is skilled and reliable assistance obtainable?
- 2 Is the patient amenable to sufficiently quiet and prolonged after treatment?
- 3 Is the circulatory system, both general and local, free from rheumatism?
- 4 Is the cornea large enough?
- 5 Is there chronic glaucoma?
- 6 Is the lens suitable (not over rigid, or chalky)?
- 7 Is the vitreous fluid?
- 8 Is there high myopia?
- 9 Is the eye too prominent?
- 10 Is the patient too old or feeble for rapid healing?

The ultimate decision about intracapsular depends on whether the disadvantage of doing a secondary operation in, say, thirty per cent of our cases, is felt sufficient to counterbalance the extra risk of intracapsular methods.

Different surgeons have wonderfully different estimates about the risk of a secondary operation, and then desire to escape it differs accordingly.

The study of the orbicularis muscle would, I think, repay ophthalmic surgery better than any other study. Were it completely subdued we could the more freely make intracapsular methods our choice, and at the same time the classical operation would be freed from its chief risk.

The present every-day speculum serves its purpose without an assistant, about as well as any speculum could, but is quite inadequate as an opposer of the contracting orbicularis, and even when lifted off the eye it leaves a strand of the orbicularis above the tarsus capable of compressing the eyeball. It is this strand which the larger size of Desmaries' elevator controls so well. Smith's hook acts in the same way, but it gains a sure grip by reason of its deep indentation into the roof of the conjunctival sac, while it also takes less room and can be moved from side to side to gain operative space in one position or another, while the fingers of the same hand that holds it lift the eyebrow high on to the frontal bone.

Sumner's speculum, which rises to a median point, is designed as a substitute for Smith's hook, but is only suitable if held by an assistant. Without an assistant it is more dangerous than the ordinary speculum. But is not the weak point of all the present methods that they leave the outer fibres of the orbicularis too little provided for, as compared with those which elevate the upper lid and depress the lower. If we place a finger firmly over the sharp outer edge of our own bony orbit and then forcibly close the eye, the finger is felt to be drawn strongly inwards, but if we place it on the nasal side of the canthi, a squeeze of the eyelids communicates scarcely any sensation to the fingers. The nasal end of the sphincter, as we know, remains much more stationary than the temporal, so that the outer fibres are drawn inwards like a sieve net. Whatever force therefore we make use of to counteract the muscle should be applied outwards, as well as upwards and downwards. The thumb on the lower lid should draw it not directly downwards, but down and out, and the lid elevator should also provide as far as possible for a force acting up and out.

Col. Smith prefers to use a speculum without a stop so as to obtain the benefit of rapid closure but the sensitive eyelids we have to do with in this country feel rather distressed by the continued elastic tension of an unstopped speculum. I have therefore put a thread upon the crossbar to carry a small nut which can be rotated into position as soon as the eyelids are sufficiently opened, and which prevents further extension, though it leaves the speculum as free to close as if it were not present. There is no need to abolish the stop, even if

it is not used. Its presence does no harm, and there are times when its temporary use is very helpful to combat a flicking eyelid. Personally I still prefer to use a stop while making the incision, if for no more. It is most unpleasant for the upper eyelid to come into conflict with an instrument in the eye.

A speculum for an *unassisted* operator should be as light as possible, preferably of aluminum or the like, and quickly removable. It should have no extension upwards of its upper conjunctival blade or wire, as any protrusion in that direction only increases the purchase of the orbicularis on the eye. To lift such a speculum does little more than to relieve the eye of the weight of the instrument and to control the ciliary bundle of fibres.

A speculum on the other hand, designed for an *assistant* to hold should, as built on different principles, be never used without being held.

The dozens of eyes that are spoiled annually in this country by sudden squeezes which overpower the ordinary speculum may well make us cast about for some way of making all squeezes ineffective and must form my apology for dwelling so long on the subject.

I will close with a very brief summary of the procedures I have advocated —

- 1 Give to cases ideal for it, the benefit of simple extraction.
- 2 In all other cases prefer a preliminary incision.
- 3 Failing both 1 and 2 perform combined extraction.
- 4 Reserve intracapsular for immature cataracts when ideal facilities present themselves.

ANOTHER MEDICAL CURIOSITY

IN our September number (page 362) we gave an account of two terata or medical curiosities recently met with, and in the January number we gave details and illustration of one of these strange conditions (Siamese twins by Military Assistant-Surgeon O'Brien, December, p. 19).



The accompanying photograph illustrated another strange junction of two children. It has

been sent us by Sub-Assistant-Surgeon Ramnath Vairma, the Medical Officer of the Dispensary at Phalodi in Marwar. Sub-Assistant-Surgeon Vairma tells us that the labour was very difficult, the woman a multipara, both were head presentations, the two heads came first, there was only one placenta and one umbilical cord. The curious twins are still alive (5½ months old in mid-November). They appear to be joined together at the umbilicus and the abdominal front wall. The stomach and intestines are separate and other organs appear well developed, both twins are girls.

THE many who were friends of the late Lieutenant-Colonel H. Pilgrim, I.M.S., will be pleased to learn that the scheme for a memorial to him in connection with the Presidency General Hospital, Calcutta, where he worked for so many years has been matured, and it is now proposed to build two open air pavilions, size 105 ft long by 27 ft broad, with verandahs on three sides for the treatment of cases of consumption. These pavilions are estimated to cost about Rs. 47,000, the equipment 8,000 and electric installation 6,000 and sufficient funds are available.

We agree with the Memorial Committee that the Puri proposal was not likely to be a success, and the present wards in the hospital for which Lieutenant-Colonel Pilgrim did so much will be an appropriate memorial.

Reviews.

Clinics of John B. Murphy, M.D., at Chicago.— W. B. SAUNDERS Co., London and Philadelphia

THIS is the 2nd number of the third volume of these valuable and ever interesting clinics, held by Dr. J. B. Murphy at the Mercy Hospital, Chicago. The present issue contains many valuable lectures, e.g., on duodenal ulcer, on cholelithiasis, vesical papillomata, amputation neuromata, goitre, &c., but Dr. Murphy's talk on surgical and general diagnosis will perhaps prove the most interesting of all, and it is of especial interest in view of the recent development in England of the worst form of so-called "medical" practice under the panel system.

Dr. Murphy comments on a recent report on the dispensary service in New York city. The Committee appointed to determine how the patients were treated reported that on the medical side of the dispensaries "a large percentage of cases never had their outer garments unbuttoned when they presented themselves for diagnosis"—a statement which no doubt will be paralleled at many a panel doctor's crowded dispensary—where, to earn a living, a poor doctor is forced to see for more patients than can possibly be thoroughly and carefully treated.

Flies and Disease—By G. S. GRAHAM SMITH Cambridge Public Health Series Second Edition

It is only a few months ago that we noticed the first edition of Dr. Graham-Smith's most useful monograph on non-blood sucking flies and disease—yet here we have a new edition.

The new edition, dated July 1914, is fully revised and incorporates all recent research, especially Baer's work on the connection between flies and dysentery in Fiji and Niven's observations on the relationship between fly prevalence and mortality from summer diarrhoea and Major Greig's work on the cholera vibrio.

A very complete bibliography increases the value of the book. It is one which should be widely studied in India. War against flies has not yet been systematically taken up in India, but there is a great need for such.

The Newer Physiology in General Practice— By DR. RENDLE SHORT Third Edition, Revised and Enlarged Bristol John Wright and Sons

WE heartily welcomed the first edition of this most useful book when it appeared just three years ago, and now we have before us a new (third) revised and enlarged edition.

The aim of the book is entirely practical. The time has long passed when it was possible for the general practitioner or surgeon to keep himself abreast with the rapidly increasing research in many departments of physiology which have a direct bearing on medical and surgical practice and it is eminently desirable that a book such as this should appear, which enables the ordinary medical man to know and understand the advances in knowledge made in the many departments of physiology.

A glance at the contents of the book will show what has been done. The first chapter is on vitamins, in connection with beriberi, growth, scurvy and rickets and to this might well have been added the work done by Major Greig, C.I.E., I.M.S., on epidemic dropsy and beriberi as recently seen in Calcutta. The chapter on the genital glands, the functions of the ovary, the chemical diagnosis of pregnancy will be found to contain much of interest and importance. The chapter on surgical shock, in which the work of Cline, Mummery, Cobbett and Vale is detailed will be found of special value, and many practical hints on the prevention of shock are given. The chapters on bone growth, and on the thyroid glands are very good, as well as the one on recent work on the pineal and pituitary glands. The study of recent work on digestion and absorption, feeding after operations on the bowel, the use or limitations in the use of ordinary nutrient enemata are of immense practical importance to both surgeon and physician. The uric acid chapter and the one on diabetes will be read with great interest.

The ever-practical question of delayed chloroform poisoning is well treated. Other valuable chapters on nerve injuries, spinal cord, cerebral

localization and cutaneous anæsthetic are all good

We can strongly recommend this thoroughly up-to-date and practical book to all our readers—physicians and surgeons.

The British Journal of Surgery.—Vol. I, including Nos 1—4 Price 30s. net. Bristol John Wright and Sons, Ltd

It has been somewhat of an anomaly that up to the present there has been no British Periodical devoted entirely to surgery as is the case in other countries. This defect may now be said to have been removed by the appearance of this publication.

The scheme of the work is that it is to include original articles, notes of various clinics both English and foreign, and short notes of instructive mistakes, rare cases, etc., etc.

There are also interesting articles on some of the great surgeons of previous days with excellent pictures of them. It is with great pleasure that we have read this book, every article is good, so it would be invidious to comment on any of them particularly.

We might however mention an article on Splenectomy in Egypt as being of interest to surgeons in this country and perhaps be permitted to quote from one on Litholopaxy, in which the following sentence appears "In that unique Stone number of the *Indian Medical Gazette* (August 1900) "

The illustrations and general get-up of this volume are of the highest class and reflect credit on the publishers.

It may also be as well to mention that Messrs Thacker, Spink & Co., of Calcutta, will forward the journal, the subscription being Rs 20 net per annum.

Thacker's Medical Directory, 1914—Calcutta Thacker, Spink & Co

THE new edition of this useful Directory is an improvement on the 1st Edition. It is divided into several parts. An introduction of 136 pages deals with the regulations for entrance to the I.M.S. and R.A.M.C. and for medical degrees at British and Indian Universities. Much of this information may not be needed by the practitioner but it is information not easily obtainable elsewhere and will be of interest and use to would-be students and their parents. The new Bombay and Bengal Medical Acts are also given.

The Directory proper is alphabetical and goes by Provinces, e.g., Assam, Bengal, Bihar and Orissa, Bombay, &c.

It is an open question whether an all-India alphabetical list or the provincial alphabetical lists are the better. There is much to be said on both sides and for convenience we think the existing arrangement by provinces is preferable.

All sorts of medical degrees and diplomas are recognised and the introduction might well give a list of such. Many names have no notice of any medical qualification whatever, and possibly have none.

Now that Bombay and Bengal have Medical Acts and Medical Councils and that a Medical Register is being prepared, the next edition of this book will, we presume, in some way distinguish by a star or the letter 'R' those practitioners that are on the Register and those that are not.

As years go on this little red volume will become increasingly useful, and we wish it every success. The price is Rs 3-8.

Therapeutics of Internal Diseases—Appleton & Co., New York and Butterworth & Co., Calcutta

THIS is an extensive treatise on the therapeutics of "internal diseases," a division of medicine which is peculiarly German, edited by Forchheimer, Professor of Medicine at the University of Cincinnati. Some 70 authors, chosen by the editor, contribute to the work which consists of four large volumes dealing with therapeutics and a small fifth volume constituting a "desk index," being a complete index to the four large volumes.

General therapeutic measures are fully described in volume I, this volume being devoted to organotherapy, vaccine and serumtherapy, climatology, dietetics, toxicology, psychotherapy and physical measures such as hydrotherapy, massage, mechanotherapy, light and electrotherapy.

Volumes II, III and IV are devoted to special therapy, the treatment of special diseases, emphasis, however, being laid on the fact that the *individual characteristics* of the patient should be considered in all cases. Everything bearing upon treatment is considered, information even to the smallest details of treatment being given. Prescriptions are furnished when it is thought necessary to show how a drug is best administered. Numerous references to the literature are given at the end of each chapter in the four volumes, and besides the general or "desk index" which constitutes a small fifth volume by itself, there is an ordinary index at the end of each of the four large volumes. Useful illustrations occur throughout the work.

In the chapter on toxicology, no mention is made of opium or *datura* poisoning, two methods of poisoning so common in India. Some allowance must be made for the fact that the work is American and prepared primarily to meet the requirements of American physicians.

The treatment of tropical diseases is included in Volume IV and the various chapters under this heading are contributed by Wherry, Woolley and Creighton Wellman. In snake-bite, the use of potassium permanganate at the site of the wound is regarded with favour. Under intestinal

amœbiasis Wherry gives credit to Rogers for pointing out the effect of ipecacuanha in the presuppurative stage of amœbic hepatitis and to Vedder for determining the amœbicidal action of emetine. Quinine administration is ably and fully dealt with by Wellman in the chapter on malaria. Wherry contributes the articles on plague and cholera, he makes full use of the results of researches on plague carried out in India and gives in detail Rogers' treatment of cholera. Beri-beri is included under "diseases of uncertain etiology," as also is epidemic dropsy, this chapter being contributed by Woolley. Epidemic dropsy is dismissed in a few lines, but reference is made to Greig's work in Bengal.

This treatise is published by Appleton & Co., New York, and is well printed and illustrated. The price for the set of five volumes is Rs 78-12. It is a good work of reference and should find a place in the libraries of medical schools and societies. The set of five volumes weighs about 20 lbs, so it is not a work which can be recommended to medical officers who are subject to frequent transfers.

ANNUAL REPORTS

MADRAS VACCINATION REPORT

The annual vaccination report is as usual interesting. The preparation of lymph is carried out at the King Institute, Gundy, and Dr F. Mantland Gibson submits the report. The institute supplied vaccine for nearly two million cases and the success rate is high viz 96.3 in February down to 81.6 in June. Some vaccinators are paid only Rs 5 per month, and in these days it is not possible to get reliable men on this pittance. Qualified sanitary inspectors, specially trained, should do this work. The lanoline paste keeps well in storage. Captain W. S. Patton has contributed a useful note on the cow-pox vaccine made at the King Institute.

Average yield of lymph per calf according to years

| Year | Grammes | |
|------|------------|---|
| 1904 | 49 | The records are incomplete. This figure would be lower. |
| 1905 | 35 | |
| 1906 | No records | |
| 1907 | 32 | |
| 1908 | 28 | |
| 1909 | 37 | |
| 1910 | 51 | |
| 1911 | 53 | |
| 1912 | 59 | |
| 1913 | 53 | |

This table is of interest for it clearly shows that more lymph has been obtained per calf during the last four years than during the earlier ones. The reason for this is twofold. In the first place the improved technique of inserting the seed lymph in groups of triple lincs results in the formation of larger and healthier vesicles, there is a greater flow of blood to the parts

and a better re-action, and the vesicles run together to form a uniform layer of lymph. In the case of the single lincs in the majority of the animals the vesicles remain small, and there is a marked tendency for them to mature and dry up between 72 and 86 hours. The second reason for the better results is due to the routine practice which I introduced in 1911, and which has since been continued, of vaccinating a larger number of calves simultaneously, ten in the morning and ten in the afternoon. The vesicles mature about the same time, and the observer has a wide margin from which to select the seed for the next batch of calves. In a very short time the eye becomes accustomed to the type of vesicle which gives the best results. The strain is rapidly passed through a large number of calves which are, as far as possible, never kept for long periods at the Institute (only on an average five to six days), the seed lymph except during intervals when vaccination is stopped is never kept for long periods. Calves kept for any length of time at the Institute soon begin to deteriorate, there is practically no fresh grazing to be had, they become infested with the calf louse, *Hæmatopinus vituli*, Enderlem, and latterly have developed a fungus disease of the skin simulating acariasis. Calves so infested with lice and the skin disease are unsuitable for purposes of vaccination.

Latterly the technique of using the seed lymph has been further improved. If it is not to be used immediately, it is without any further treatment placed in a sterile petri dish and stored in the cold room. When required it is pulped and mixed either with glycerine or with sterile saline solution, and then used for vaccinating the calves. Five hundred and eighty-one calves were vaccinated in this way during the months of February and March 1914 and 5,413.4 grammes were collected from them, each calf yielding on an average 9.31 grammes. All the vesicles were well formed and typical, the lymph produced normal vesicles on children vaccinated at Sardapet.

After a long series of passages through the calf the organism (?) of vaccinia becomes attenuated. This has long been recognised, and a recent observer has again drawn attention to the fact that the donkey is the best animal for exalting the virus, unfortunately this animal is most difficult to procure locally. Failing this it has been found best to introduce the seed from different parts of the country and select the one which gives the best results. The rapid passage through a large number of healthy calves at definite periods of the year, especially avoiding the hot months of April, May and June, storing several good masses of vesicles in the semi-dry state for very short periods, pulping and mixing these either with glycerine or sterile saline solution is the routine technique now employed.

It is interesting to note that about 6 per cent of the calves are rejected as failures, i.e., either no vesicles have formed at the site of vaccination or only a few abortive ones. I believe that at least some of these animals have already had vaccinia and are either wholly or partially protected. The success rate in calves works out at 94 per cent. If a proportion of calves (6 per cent), which are vaccinated with seed of a known potency and which give excellent results on several other animals vaccinated at the same time and over a comparatively enormous area of skin, fail to take, how much more is it likely that a proportion of children vaccinated over a comparatively small area of skin and often under most unfavourable circumstances will fail to take, or take badly. If the success rate in calves is 94 per cent one can hardly expect it to be higher in children unless they are vaccinated with the greatest care and all precautions are taken to see that the vaccinated areas are not interfered with, this is in many cases impossible in the case of village children.

A perusal of the figures I have quoted lends no support to the view I have heard expressed that better cow-pox vaccine was obtained in the earlier years of the work of the vaccine section than during the later years. I have no hesitation in saying that the vesicles produced as the result of triple lines are better than those from single lines.

Dr Gibson comments on this report of Captain Patton as follows —

"Attention is drawn to certain improvements of procedure, notable among which are—

(1) The selection of lymph for seed purposes from a large number of animals vaccinated in the ordinary way. This is entirely in accordance with the practice at the Government Lymph Establishment at Hendon, London, and has quite superseded the vaccination of special stock animals.

(2) The three-line method of insertion. This certainly does seem a better procedure for the class of animal and the climate we have to deal with.

(3) If the reputed improvement in stock lymph when kept in the form of unground and unmixed pulp is maintained a farther notable advance will have been made in our technique."

SANITARY PUNJAB

Major E L Perry I.M.S., who was acting as Sanitary Commissioner in the Punjab, submitted the Vaccination Report for the year 1913-14, a marked feature of the brief report is the high percentage of success both primary and of re-vaccinations.

The percentage of success returned by the various inspecting agencies were as follows —

| | Primary vaccinations | Re-vaccinations |
|--------------------------------|----------------------|-----------------|
| Civil Surgeons | 96.45 | 69.64 |
| Divisional Inspectors | 95.14 | 51.74 |
| Superintendents of Vaccination | 95.89 | 70.89 |
| Vaccinators | 97.40 | 71.03 |

PUNJAB VACCINE INSTITUTE

The vaccine lymph supplied by the Punjab Vaccine Institute was used for all vaccinations during the triennium, and Civil Surgeons have reported that the supply was regular and the lymph on the whole of most excellent quality. Some weak lymphs however were sent out. Shortly before the Murree Depot was closed last year two lymphs in succession were sent out which gave excessively poor results, and in most cases resulted in total failure. Any slackness on the part of the staff of the Institute is bound to result sooner or later in a failure of this class, the trouble and harm arising from which are serious and widespread. In connection with this failure, in the Muzaffargarh District alone the Civil Surgeon reported that 310 cases had to be done a second time, as the first operation failed to give any result.

Out of 33,329 tubes issued during 1913-14 results were received in the case of 29,869 tubes, showing that 965,061 primary and 235,948 re-vaccinations were performed with an insertion success of 95.17 per cent in primary and 69.01 per cent in re-vaccinations. These percentages closely correspond to those of the preceding year.

The annual income realised from the sale of lymph now largely exceeds the total working expenses of the Institute, and, at the present rate, may in time repay to Government the whole of the capital and maintenance charges of the Institute.

There is need for considerable structural additions to the Institute and for improvements in the production and storage of lymph. It is hoped that the half lakh granted by the Government of India will suffice to effect all these improvements, the plans and estimates for which are being dealt with.

I consider also that there is room for great improvement in the supervision and management of the Institute, and am strongly of opinion that the Resident Superintendent, who has very responsible duties, should be an officer of long service and mature experience.

With the quality of lymph supplied it should be possible to attain to close on 100 per cent of success in primary vaccinations. Carelessness and ignorance on the part of vaccinators are certainly responsible for many failures.

TRAINING OF VACCINATORS

I would strongly urge that every vaccinator should be properly trained for a period at the Punjab Vaccine Institute.

They would be thoroughly grounded in the technique of vaccination, the cure of lymph, the preparation of all then returns and registers, and the methods of checking birth and death registers. They would also go through a simple and practical course of hygiene, including the rudiments of village sanitation, disinfection and cleansing of wells and methods connected with cholera, plague and malaria.

SANITARY REPORT, BIHAR & ORISSA

Lieut-Col E C Hare, I.M.S., submitted the Annual Sanitary Report, B & O, for the year 1913.

The following note on the important matter of **improving registration** is worth reproducing.

(a) An enquiry was made to ascertain whether any improvement could be made in the registration in compulsory areas by taking the work out of the hands of the police and placing it under a special agency to be controlled by the Health Officers. It was found, however, that none of the Municipal towns in this Province possess, or could afford to employ a staff having as complete or as efficient an organisation as the police, and it was decided that it would be better to try to perfect the work of the existing agency by associating the Health Officers with it rather than to introduce a new element, the beneficial effect of which on the registration would be very doubtful.

(b) An enquiry was also made to ascertain whether it would be practicable to divide up some of the larger towns into smaller registering circles, and register vital occurrences at the police outposts as well as at the thanas so as to lessen the distance which a householder living in the outlying parts of the town has to go to make his report and to make it more easy for the inspecting staff to detect omissions. It has not yet been completed.

(c) Another enquiry was made to ascertain whether any advantage would be gained by registering vital occurrences in rural areas by chaukidari unions instead of by thanas. The population of a thana area is so immense that it is impossible from the records of past years to locate areas in which disease is endemic with a sufficient degree of accuracy to make them of value for scientific investigations and it was thought, as the records of crime are registered by chaukidari unions, that the records of vital occurrences might also be registered in the same manner. It appears, however, that the number of registration units would be increased from 227 to 4,212 which would involve an enormous addition to the statistical work of the

Sanitary Commissioner's office The subject is one of practical importance in view of the future development of measures for the control of epidemics, and it is still under consideration

(d) A scheme is also under consideration to keep an accurate record of the vital occurrences of a selected population living in an area where economic and sanitary conditions are fairly stable and where there is comparative little migration Such a record would give a complete life-history of the population which would be of great value in the study of the vital statistics of the Province

Permanganating of Wells and Cholera—In most of the districts of Bihar, the practice of disinfecting wells with permanganate of potash is becoming more extensive In *Saran* large numbers of wells were disinfected in this manner, and the people were reported to be learning to call for and promptly as soon as cholera breaks out, and to ask to have their wells disinfected Itinerant compounders are employed by the District Board to do this work They also treat patients and distribute cholera leaflets

In *Muzaffarpur* the District Board have started a scheme to sell permanganate of potash for disinfecting wells through postmasters, teachers of primary and middle schools and village *muharrirs* The drug is packed in tins containing 2 oz each, and is offered for sale at the price of 2½ annas The distributing agents are allowed a commission of one pice on each tin Unfortunately no opportunity occurred during the past year of testing the value of this experiment, as the supplies were only issued to the Sadr and Pauri thanas while the cholera epidemic occurred in the Sitamarhi sub-division The Board, however, expect to have their arrangements ready for distributing the drug to the latter sub-division also before the next cholera season begins

Cholera and Pilgrim Centres—The Committee consisted of the Sanitary Commissioner with the Government of India, the Collector of Gaya, the Civil Surgeon of Puri, representatives of the East India and Bengal-Nagpur Railway Companies, the Sanitary Engineer and the Sanitary Commissioner of Bihar and Orissa The Committee visited Puri, Gaya and Deoghar

An investigation is being made to ascertain to what extent the cholera carrier is of importance in spreading the disease At the suggestion of the Sanitary Commissioner with the Government of India the particulars of all the patients discharged from the Puri cholera hospital whose homes are in Bihar and Orissa are registered, and an enquiry is made about each of them to ascertain how far they are responsible for outbreaks of the disease in other places, and a similar investigation is, I understand, being made in other Provinces The number of cases which have been recorded so far in this Province has not been sufficient to lead to any definite conclusions The enquiry is to be extended to patients who are discharged from cholera hospitals in other districts

Quinine and Malaria—The sales of quinine in the Province generally increased by 2,673 ounces The largest increase was in the Purnea district, where all the panchayats were supplied with the drug The only districts in which the sales fell were the four Hill Districts and Cuttack, Puri and Shahabad The other districts all took their share in the rise

During the year under report the old method of packing Government quinine for sale to the public in pice packets and bottles of tablets was abandoned, and in place of it the system of packing the tablets in glass phials was introduced Each phial contains twenty 4-gram tablets, and is called a "treatment," because it is considered that 80 grains of sulphate of quinine

is the smallest quantity which is required to treat an uncomplicated attack of malaria Each "treatment" is labelled with a paper on which the Government crest and the price are printed and is wrapped up in a leaflet which explains in the vernacular the method of self-treatment Ten such "treatments" packed up together in a strong cardboard box, make a parcel The cost of a parcel to the distributing agents is Rs 2-1-0 and by selling the treatments separately at the authorised price of Re 0-4-0 each, the agents are able to make a handsome profit of Re 0-7-0 on each box The new system is a great advance on the old one and the sales ought to increase markedly when the treatments become more widely known

An endeavour is being made to increase the number of agents for the sale of quinine One of the difficulties which is experienced in pushing the sales is the paucity of suitable agents Hitherto the postmasters are the only agents who have been employed The sales by them though small have been fairly constant, and on the whole, they have tended to increase year by year But when it is borne in mind that one Post Office serves on an average about 66 square miles of country and that most of the Post Offices are clustered together in headquarter towns and at the large centres of business, it is obvious that the quinine has little chance of reaching the village communities for whom it is intended

[It may, incidentally, be noted that these quinine tablets are made and supplied in boxes of treatments by the Juvenile Jail, Alipore, Calcutta]

Correspondence.

GREEN VISION AFTER QUININE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following personal experience is of interest owing to the rarity of the symptom produced A few weeks ago I had a slight attack of influenza and commenced taking quinine After taking 12 grains during the day, I found by afternoon that I was seeing green This is of course a recognised effect of cinchonism, but Leftwich gives it as rare and in this case it is specially notable to have been produced after so small an amount as 12 grains

I wonder whether others in India have found patients complaining of this change in vision when taking quinine?

The green vision lasted all that evening but had gone by noon the following day and did not recur though I was continuing to take quinine for several days

POONA, } I am, etc,
December, 1914 } I RUTTER WILLIAMSON, M.D.

A DOG BITE TREATMENT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following graphic account of one of the methods adopted in this country of treating persons bitten by dogs suspected of being rabid may be of interest

It was furnished by Sub Assistant Surgeon Subrahmaniam of the Local Fund Dispensary, Palakode

The reputed aim of the treatment is to induce in the person bitten a condition simulating hydrophobia and, in doing it, to remove the rabid poison that has been deposited in the system and so to save the patient from a true attack at a later date

"He was bitten on 20th November 1914 at 8 A.M. He says that he was given some oil by a native quack on 21st November 1914 at about 7 P.M. At once he became delirious violent and uncontrollable, barking like a mad dog and biting all who approached him Then he was shut in a room where he remained the whole night in the same condition, passing urine and motion involuntarily Next morning the quack made an incision on the scalp, rubbed lime juice and poured plenty of cold water on his head for about three hours Then he recovered consciousness and was given chicken broth"

The drug administered was probably some preparation of *Cannabis indica*

J W CORNWALL, MAJOR, I M S,
December 1914 Director, Pasteur Institute, Coonoor

A COLD IN THE HEAD CURE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—All Rhinologists are aware that Menthol has a great effect in causing inflammation of the Mucosa of the respiratory tract, but some of your readers may not know that the following method of treating a common cold gives exceedingly satisfactory results—

As soon as that irritation in the nose or pharynx, which heralds the onset of the cold is experienced, the patient should inhale the fumes given off by a few drops of an alcoholic solution of menthol added to boiling water. The inhalation should be repeated at least every second hour during the day. In a short time the benefit derived will be marked and by night, if the cold began in the morning, the cure will be complete.

If treatment be delayed and the irritation has existed for five or six hours—the feeling of malaise and the excessive sensibility to cold of the body surface so characteristic of the disease having already made their presence felt—then all that can be hoped for in what, treated otherwise than by inhalation, would be an attack lasting a week or longer, is that the catarrh will be effectually checked within 60 hours of its commencement, and that the patient will not become a nuisance to himself and others in consequence of its having "settled on his chest." A convenient method of applying the drug is to drop 5 drops of the solution given below on the surface of boiling water and at once to inhale the fumes. The counter the inflammatory condition the greater the temporary discomfort will be on inhaling, but at least 4 or 5 inhalations should be made and these, in view of the results will be gladly repeated in two hours time, and so on.

R Menthol gr 30

CALCUTTA,
December, 1914 }

Spt Vin Rectif 5 ss
W D SUTHERLAND, M D

AUTO THERAPY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—With reference to the article on "Auto therapy" in your issue of November 1914, I send you notes of 4 cases in which "Auto therapy" was tried by me after reading Dr Duncan's article in the "Practitioner" of April 1914.

CASE 1.

Hindu, male, age 40

Was brought to hospital in a cart, had sloughing ulcer of foot with diffuse cellulitis, and purulent discharge after a cut that had almost severed the great toe except for a flap of skin.

Application of Hot Boric Compresses, Hydrogen peroxide and dressings with Iodoform preceded by application of Acid Carbolic were tried with little effect. Then the treatment of Auto Therapy was resorted to. A moist dressing with a thick pad of lint soaked in boiling water was applied and the next morning 6 drops of the pus were squeezed out of the dressings and this was given internally as an emulsion in an ounce of boiled water. This was repeated for 6 days. The suppuration and sloughing ceased and the ulcer granulated from the bottom. He was, however, a month and a half in hospital, owing to general debility.

CASE 2

A Burman, coolie, age 20

Was admitted with two abscesses occupying the whole of the front and left side of the neck. He had on the right side scars of sinuses that had recently healed.

Both the abscesses were incised freely under usual antiseptic precautions. The next morning pus from the dressings as mentioned above, was administered in 6 minim daily doses to an ounce of water, for a week. Patient was discharged after a fortnight completely recovered.

CASE 3

Hindu, male, coolie, age 25

Was admitted to hospital in moribund condition after 2 months' fever and starvation. He had a large patch of bed sore occupying a portion of the lumbar and the whole of the sacral region, the base of the ulcer reached down to bone, its surface was covered with a thick black slough, and there was a very offensive discharge. After dissecting away the large slough, the ulcerated surface was swabbed with Carbolic Acid, and dressed with Iodoform, but healing was

slow and the discharge continued. Patient was given 6 drops of pus from wet dressings daily for a week, the discharge then became markedly less and the granulations more healthy. Although repair was delayed owing to his extremely debilitated condition, within six weeks' time the ulcer had completely healed. He was in a lethargic condition for a month after admission, and appeared at first to be a hopeless case.

CASE 4

European, male, age 33

Had developed an extracapsular abscess of knee joint after a fall. This had been opened by a local practitioner. There was a copious discharge of pus from the boggy swelling round the patella issuing from the small opening on removal of dressings and running down the leg. The original incision was enlarged, and 5 drops of pus were drawn up into a sterilized hypodermic syringe directly out of the wound. This was emulsified with an ounce of boiled water and given to the patient morning and evening. Twenty four hours later there was scarcely any purulent discharge, but sufficient was obtained to repeat the internal administration morning and evening. On the third day there was only a slight opaque watery discharge tinged with blood, five minims of which were given once only. Four days later, a week after treatment, the operation wound had completely healed.

Yours, etc,

M BROOKES,

1st Class Military Assistant Surgeon,
Civil Surgeon, Kindat

December 1914

"TREATMENT OF MALARIA"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In reference to August No. of *The Indian Medical Gazette*, page No 331, I beg to submit herewith my experience on the treatment of malarial fever from July 1893 in connection with the epidemic duty at Nuddea where I was for six months and thence afterwards in various places of Bihar and Bengal (Now I have been dealing with Terai fever since last 11 years). During these 31 years of my service I have come in contact with not less than 50,000 fever cases of all varieties and shapes, and I have many opportunities to give a good trial of arsenic iodine, cinchonin febrifuge, quinine and other antipyretics in all forms and shapes, but I cannot pronounce any better or more radical and effective remedy for the cure of malaria than quinine in solution administered both by mouth and intramuscular injection according to the virulence of the disease demanding one or other of them. I found that quinine hydrochlorate is readily absorbed and works rapidly than the sulphate, bromide or other various salts. I also observed that sluggish and lax state of liver and stomach with defective state of their natural secretions and constipated bowels prevent absorption even if it is given in solution form. I noticed quinine pills and tablets passing out entire with feces without any change.

Since 1904 I have been using Quinine Bihydrochlorate intramuscularly in 9 grains doses twice a day in all cases of malignant tertian received from Terai. The blood of all fever cases are being examined microscopically under the guidance of Dr A D Humphry, the Civil Medical Officer, for purpose of diagnosis before administering any specific drugs.

On two occasions intravenous injections of quinine have been used with good result in bad types of malignant fever with brain complications.

I have applied about 300 hypodermic injections of quinine but no signs of tetanus or cellulitis abscess, &c, were noticed in any case either in the hospital or in my private cases. We give strict attention for having asepsis of site and appliances, hence no untoward result occurs afterwards. We use using all glass aseptic hypo syringe with platinum needle, &c, from Messrs B W & Co and found them very convenient, handy and lasting for the purpose than any other syringe of the kind.

Site of injection—buttocks is most suitable site selected, though arms and shoulder blade may also be preferred in certain instances and especially in private cases, after injection the place is secured with collodion coating.

Routine treatment of other cases than malignant or mixed type cases, i.e., B tertian, quartan, &c, as signifying after microscopical examination. In 90 per cent of fever cases the excess of eosinophile were found on examination of the blood, besides the malarial parasites in various forms, which explain the presence of intestinal parasites (the latter being a common complaint here 99% are infected with them more or less) which are supported by the examination of feces for ova of the parasites. So on admission of almost all cases of fever one dose of Worm Powder with Pulvis Jalapa Composition is given at once, which clears out stomach and bowels to facilitate

| | | | |
|--------------------------|-----|---------------|--|
| Worm Powder, R Santonine | gls | iii | Assimilation & absorption & the following quinine mixture given 3 times a day for 3 weeks to cure every case radically |
| P Cinnamon | gr | i | |
| Betanaphthal | gr | ii | |
| Calomel | gls | ii | |
| Sodu Bicarb | gls | i | |
| Quinine Mixture, R | | | One dose 3 times a day tech nic |
| Quinine sulphate | grs | 10 | |
| Acid sulph dil | m | 15 | |
| Aqua Camphor | oz | $\frac{1}{2}$ | |
| Aqua Chloroform | oz | $\frac{1}{2}$ | |

There is a laboratory with ordinary stains, &c, with high power microscope belonging to the hospital and ordinary examination for malaria parasite, Tubercle bacilli, Staphylococci, Streptococci, Pneumococci &c, intestinal parasites are held for (as routine work) Clinical and diagnosis in almost all the cases

There is no positive proof or sign yet known on which can be relied either from the blood examination or from any other way for announcing the case free from malarial poison.

N B—(1) If quinine is at once discontinued, a relapse is very likely to take place. The drug should be continued for a week or two after the pyrexia ceases and 10 grains a day for up to the end of one month from the attack. Should relapse recur at a later date a similar course should be repeated. A subject of malaria should also take the drug when going to a cold climate or to the hills, as a chill often brings on a relapse of malaria. (Vide Sir L. Roger's *Tropical Fevers* page 234)

(2) The proper way to treat malarial fever in our troops' hospital in India is to keep the patient in hospital and under quinine and mosquito nets until gametocytes are no longer to be found in the surface blood, then discharge him to attend daily for his course.

Yours faithfully,
G M DAS,
Senior Grade Sub Asst Surgn,
In chge Hosptl & Dispnsy
Kurseong

"A NEW VIEW OF RATS AND PLAGUE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The subject of plague prophylaxis is such a grave one that only the most cynical could approach it in a spirit of levity. It may therefore be assumed that Capt Nailor was thoroughly serious in presenting as a practical proposal, a scheme for preventing plague by catching rats and rendering them immune by inoculation. His suggestion is no doubt a logical one if one is prepared to accept the rat flea theory in full, but I would ask has he considered what an opening he has given to the cynical scoffer. Can he not imagine the sceptic, tongue in cheek, discoursing as follows—

"My scheme is one that like Capt Nailor's depends for success on ability to capture a considerable proportion of the total rat population. But there is one notable difference. Capt Nailor makes no distinction between the sexes but captures both indiscriminately. I would suggest the capture of male ones, preferably young males, employing the antiseptic precautions indicated in Capt Nailor's article, and for humane reasons using chloroform. I would then remove both testicles. Chloroform would add slightly to the expense of the process, but this would be more than compensated for by the lessened mortality. On recovery the rats are liberated. The reason for this is twofold, in the first place a castrated rat eats just as much as an entire one, and so one avoids putting the potent surviving males in conditions of specially favourable environment as regards food owing to the removal of their competitors. In the second place although it is improbable that the natural fierceness of the rat would be considerably aggravated by the operation to which they had been subjected, yet it is possible that they might combine to exterminate their more fortunate companions who had escaped capture. Of course the older males being larger and stronger would be able to put up a fight and so resist extermination, but on the other hand they would soon be eliminated under the operation of Biffle's law. This law it may be remembered was worked out in connection with the extermination of rabbits in Australia. It is found that if propagation can be foisted on the shoulders of a few elderly males in a short time they succumb and so propagation ceases and the race becomes extinct."

But enough of fooling. Where is Capt Nailor's common sense, where is his recognition of accepted facts? Let us admit for a moment that it is possible to carry out his scheme of immunizing directly and indirectly the rat population, what results can he guarantee? Is he ignorant of the fact that in many great epidemics of plague, notably the Manchurian epidemic, the ideal rat immunity which he

seeks had already been provided by nature and yet men died of plague in thousands. Enormous numbers of rats were examined in Manchuria and yet not one was found infected.

What was the cause of that immunity, by what mysterious process of her illimitable laboratory nature had produced this marvellously complete result, we cannot say, nor in my opinion are we ever likely to be able to say if the infinite complexity, intricacy and instability of the factors that determine virulence and immunity be taken into account.

That such proposals as that of Capt Nailor's should be seriously put forward and seriously be discussed indicates that between the medicine of the modern scientist and that of the medicine man of West Africa there is frequently much less difference than is commonly supposed. Yet it must be admitted that medicine of some sort is urgently required, be it good or bad. What have you to offer instead of this that you decry, may then reasonably be asked? Simply this to recognize that plague is largely a disease of insanitation, that the part played by rats may be insignificant, that the extinction of rats like that of plague is best brought about by the reconstruction of the most infected centres and by a general improvement of sanitation in every direction. Sanitation of course is no mere matter of drains.

"CRITICUS"

THERAPEUTIC NOTICES

WE have received from the Proprietors of HORLICK'S MALTED MILK an unusually attractive almanac. A new idea is embodied in this production. A date card for 1915 (movable in months), a calendar for 1914 is on the left and for 1916 on the right—an extremely useful plan for business men wishing to refer back or forward.

Horlick's Malted Milk Co., who are issuing this almanac, are known throughout the world for their valuable milk food, which enjoys a great and ever increasing popularity in India and the Far East. A feature of Horlick's Malted Milk is that it combines an extremely pleasant beverage with health and strength giving properties, being a scientific combination of milk, wheat and barley, put up in powder form in sealed glass containers (three sizes), and is exceedingly valuable in the climatic conditions prevailing in India and other hot countries.

No name is better known amongst the medical circle than that of N POWELL & Co. The progressive activity of the abovenamed widely known concern in connection with the manufacture of surgical instruments and hospital furniture has placed it in the front rank of a highly important trade. No firm in India has done more towards the perfecting of such production. This had a career of steady growth and sustained success. Had it not been for this very enterprising firm it would have been almost impracticable to fit up several base and war hospitals in such a short time. This is not the only time that the firm has rendered valuable service to Government at the present critical juncture by supplying several field hospitals with medical furniture and requisites due to war. The fitting up of the hospital ships *Loyalty* and *Madras* is to be credited to this firm and also by fitting up of the Lady Raiding War Hospital by this firm has materially contributed to the success of the laudable idea of setting up a hospital for the wounded Indian soldiers who are to take part in the present European War. As far as our knowledge goes we can positively say that no other single firm in this country could have met such sudden demands for medical furniture, surgical instruments, ambulance and hospital requisites, and hence our special thanks are due to the enterprising manager of the firm who has shown so much pluck, energy and promptness at such a grave emergency.

We already know that N Powell & Co are the pioneers in manufacturing surgical instruments, orthopaedic appliances, artificial limbs, and aseptic hospital furniture in India, and have thus popularised and cheapened the most useful articles indispensable in the art of healing. Their address is Hornby Road, Fort, Bombay.

MESSRS C J HEWLETT & Co., Charlotte Street, E C, London, send us samples of their SURGICAL CREOSALGEN, a highly antiseptic preparation. It is sold in several forms. The "Creosalgen Jelly" is an ideal lubricant for use in midwifery. Creosalgen is not expensive and is an easily miscible fluid. One part in 100 is said to be effective as a disinfectant.

HORLICK'S Malted Milk Co call our attention to an error in our notice in these columns (p 450, November, I M G). The firm there mentioned Messrs D J Keymer & Co are the advertising agents. The name of the Company is the Horlick's Malted Milk Co., of Slough, Bucks, England.

Service Notes.

COLONEL R. NEIL CAMPBELL, CB, CIE, IMS (ret'd), recently I G of Civil Hospitals in Assam, is in charge of the very large hospitals at Brighton for Indian troops. Lieutenant-Colonel J. N. Macleod, IMS, had charge of a 500 bed hospital in the Pavilion and Lt Col Sweeny, IMS, of a 550 bed hospital in York Road, Brighton.

There is an intention too of opening in the Brighton workhouse a huge 2000 bed hospital, and the following retired IMS officers were mentioned as likely to be in charge: Lieutenant Colonels R. E. S. Davies, E. H. Sharrman and J. J. Pratt.

The Pavilion Hospital consists of 7 sections, an IMS man in charge of each, viz., Colonel Joshua Duke, Colonel E. W. Young, Lieutenant Colonel D. G. Crawford, Lieutenant Colonel Duer, Lieutenant Colonel Greany, Major Peck, Lieutenant Colonel J. J. Pratt, with Lieutenant Colonels Coates as Registrar and T. D. C. Barry as X-Ray specialist. In this Hospital also are Lieutenant Colonel Woolbert, Hulbert, Langton, Dick, O. L. Williams and Rickets, and O. H. Channer. Lieutenant Colonel W. H. W. Elliott is Secretary to P. M. O. there. Lieutenant Colonels Gibbons, Bull, H. Herbert and J. B. Jameson have been attached to both the Hospital at Brockenhurst and to the one at Brighton.

WAR NOTES

THE casualty lists in the *Times* for the three days, 1st to 3rd December amounted to 92, 23 officers killed, 64 wounded, and five missing. There were no medical officers among them.

A much longer list was published on 4th December. In the Expeditionary Force in Flanders 18 officers were killed, 12 wounded, and one missing, amongst British troops, of British officers of Indian troops 15 killed, 25 wounded, and 6 missing, of Indian officers 13 killed, 12 wounded, and 1 missing, a total of 103 for the day. Among the killed were Lieutenant G. H. Chisnall, RAMC, whose death has been unofficially reported long before, Major P. P. Atal, IMS, and Captain Kunwar Indrajit Singh, IMS. There were also reported 15 officers wounded in the Persian Gulf expedition, including Major T. G. F. Paterson, IMS.

Over ten years have passed since the IMS lost a member killed in action, the last being Captain F. Syme, killed at Gumburru, Somaliland, on 15th April 1903. It is curious that the first two IMS officers killed in the present war should both be Indians, the first Indian members of the Service to fall in action, though Indians have served in the IMS with credit and success for just fifty years.

MAJOR PUNDIT PIARAYLAL ATAL, IMS, was born on 2nd August 1872, educated at Bart's, took the M.R.C.S. and L.R.C.P., London, in 1898, and after serving as House Physician and Junior House Surgeon to the Clayton Hospitals, Wakefield, entered the IMS as Lieutenant on 28th January 1899, becoming Captain on 28th January 1902, and Major on 28th January 1911. He was medical officer of the 129th Baluchis. He served in the China War of 1900, and received the medal.

CAPTAIN KUNWAR INDRAJIT SINGH, IMS, was the son of Sir Harnam Singh, K.C.S.I., and was born on 27th December 1883. He was educated at Cambridge and at King's College, London, and took the M.B. and B.C., at Cambridge, in 1911, the M.R.C.P., London, in 1912. He entered the IMS as Lieutenant on 28th January 1911, and was promoted to Captain on 23rd April 1914. He was medical officer of the 57th Rifles (Wilde's Rifles).

MAJOR THOMAS GEORGE FERGUSON PATERSON, IMS, was born on 6th December 1876, educated at Trinity College, Dublin, where he took the M.B., B.Ch., and B.A.O. in 1901, entered the IMS as Lieutenant on 29th January 1902, became Captain on 29th January 1905, and Major on 29th January 1914. He was medical officer of the 37th Lancers (Sind Horse), but had been officiating as Civil Surgeon of Surat till recalled to military employment at the beginning of the war.

The four days from 5th to 9th December returned 95 casualties, 40 killed, 47 wounded, and 8 missing besides two officers killed and three wounded in the Persian Gulf expedition. No medical officers' names were included in the above, but it was stated that five medical officers, previously reported as missing, were prisoners: Captains H. G. Robertson, A. M. Pollard, C. T. Edmunds, F. J. Garland, and E. N. Middleton, all of the RAMC.

THE *Times* of 2nd December published the names of 58 officers of the Expeditionary Force appointed as Companions of the Distinguished Service Order. Among them are three medical officers.

"Captain James Stuart Dunce, RAMC—During German attack on night of October 31, near Messines, he established a dressing station just behind the trenches, and was the means of saving many lives, he himself going several times into the trenches to attend to wounded men who could not be moved.

"Captain Patrick Sampson, RAMC—Has shown frequent and conspicuous gallantry throughout the campaign, especially on October 21st and 22nd, attending wounded men under very heavy shell fire.

"Captain Sidney John Steward, RAMC (Special Reserve)—Went with party of stretcher bearers across ground swept by rifle and shell fire to Langemark village and removed 11 wounded men."

THE *London Gazette* of 9th December notifies the appointment of twenty more officers to the Distinguished Service Order, including the three following officers of the RAMC (V p 80 *infra*):

Lieutenant Henry Beddingfield, MB, RAMC—For coolness and daring in repeatedly superintending removal of wounded from the firing line under heavy fire.

Major Sidney George Butler, RAMC—At Miory, on September 15. For coolness and courage in continuing all day to collect wounded, under severe shell fire.

Captain Malcolm Leckie, RAMC (deceased)—For gallant conduct and exceptional devotion to duty in attending to the wounded at Flanders, where he was himself wounded.

Captain Leckie was previously reported as wounded, but his death had not been announced before. He was educated at Guy's Hospital, took the M.R.C.S., and L.R.C.P., London, in 1907, and entered the Army as Lieutenant on 4th February 1908, becoming Captain on 4th August 1911. He was recently attached to the Egyptian army.

MENTIONED IN DESPATCHES

THE *London Gazette* of 4th December publishes a despatch from Field Marshal Sir John French, giving a supplementary list of officers, to be added to those entered in his despatch of 8th October. Among them are the names of two medical officers, Colonel S. Westcott and Lieut. H. Beddingfield, both of the RAMC.

Another despatch covers one from Major General A. Paris who was in command of the British force sent to Antwerp, relating to the operations round Antwerp from 3rd to 9th October. Among the officers mentioned in this despatch is Fleet Surgeon E. J. Finch, RN.

THE *London Gazette* of 9th December announces that Lieutenant W. S. Hyde, RAMC (Special Reserve), was dismissed by Court Martial on 14th November. He joined the Special Reserve on 20th February 1913, and joined for duty on 5th August 1914. His name does not appear in the *Medical Directory*.

LIEUTENANT COLONEL HERVEST MACKINLAY MORRIS, IMS, retired, died at Ootacamund on 1st May 1914. He took the M.R.C.S. and L.R.C.P., London, in 1885, and entered the IMS as Surgeon on 30th September 1886, becoming Major on 30th September 1898, and Lieutenant Colonel on 30th September 1906, and retiring on 14th May 1907. After some seven years on military duty, he entered civil employ in Burma, was transferred to Bengal a year later, and soon afterwards, on health grounds to the Punjab, finally reverting again to military employment. The *Army List* assigns him no war service.

LIEUTENANT COLONEL EDWARD BUTLER RUTLEDGE, Bengal Medical Service, retired, died at Woking on 5th December 1914, aged 70. He was born in 1844, educated at the London Hospital, took the M.R.C.S. in 1865 and the L.S.A. in 1866, and joined the IMS as Assistant Surgeon on 1st October 1869, becoming Surgeon on 1st July 1873, Surgeon Major on 1st October 1881, and reaching the rank of Lieutenant Colonel on 1st October 1889. He retired on 1st October 1895. Most of his service was spent on civil employment in the North West, now the United Provinces. The *Army List* assigns him no war service.

IN the *Times* of 12th November 19 casualties were reported, 6 officers killed, and 13 wounded, no medical officers were among them.

On 13th November the number was much larger, 58, 24 killed, 35 wounded, and one missing. They included three medical officers, Captain E. M. Glanvill killed, Major F. S. Irvine wounded, and Lieutenant R. A. Hood, previously reported as missing, now stated to be a prisoner of war.

CAPTAIN ERNEST MURE GLANVILL was educated at Edinburgh University, where he took the M.B. and Ch.B. in 1901. After serving as Assistant House Surgeon at the Devonshire Hospital, Buxton, Medical Officer to the Casualty Department at the East London Hospital for Children, Shadwell, and Second Assistant Medical Officer at the Paddington Infirmary, he entered the RAMC.

as Lieutenant on 31st August 1903 and became Captain on 28th February 1907. He was recently stationed at Newcastle.

MAJOR FRANCIS STEPHEN IRVINE had appeared in the casualty lists before, as missing, in the first list published, on 1st September. He was educated at Queen's College, Belfast, took the degrees of the Royal University, Ireland, in 1899, and entered the Army as Lieutenant on 17th November 1899. He had served in the South African War, and was present at the relief of Ladysmith, and in the actions at Sprinkop, Vaal Kwantz, and Tugela Heights, and in the operations in the Transvaal and in the Orange River Colony.

LIEUTENANT ROBERT ALEXANDER HOOD was educated at Trinity College, Dublin, where he took the M B B Ch, and B A O in 1912, entering the Army on 26th July 1912. He was recently stationed at Woolwich.

On 14th November 62 casualties were reported, 25 killed, 32 wounded, and 5 missing, no medical officers among them.

THE *Times* of 16th November published the appalling number of 235 casualties, 65 officers killed, 132 wounded, and 38 missing. Among the killed were Captain T M Phillips, and Captain C P O'Brien Butler, Captain H S Dickson, and Lieut L R Shore were wounded, and Captain A A Meaden wounded and missing, while Captain R V Dolbey was stated to be a prisoner, all of the R A M C.

CAPTAIN THOMAS McCANN PHILLIPS was educated at Queen's College, Belfast and took the M B, B Ch, and B A O of the Royal University, Ireland, in 1905. After serving as senior House Surgeon at the Royal Victoria Hospital, Belfast, he entered the Army as Lieutenant on 29th July 1907, becoming Captain on 29th January 1911. He was recently stationed at Cawnpore.

CAPTAIN CHARLES PAGET O'BRIEN BUTLER died of wounds on 1st November. He was the eldest surviving son of the late Major O'Brien Butler, of the 60th Rifles. He took the L R C S I and L R C P I in 1905, entered the Army on 29th July 1907, and became Captain on 29th January 1911. He was recently stationed at Kikee. He was a first class cross country rider, and had three times ridden in the Grand National Steeple chase. He had ridden for King Edward at Sandown and elsewhere, had won the Cup from the Military Steeple chase, and last spring received a Pressburg Steeple chase at Vienna. Since the war began he had been attached to the 5th Lancers.

CAPTAIN HAROLD STEWART DICKSON was a Barr's man, who took the M R C S and L R C P, London, in 1905, entered the Army on 29th July 1907 and became Captain on 29th January 1911. He was recently stationed at Gibraltar. The three last men, it will be seen, all entered in the same term.

LIEUTENANT LEWIS RUDALL SHORE was educated at Cambridge and Barr's took the B A, Cantab, in 1911, the M R C S and L R C P, London, in 1913, and gained his commission on 30th January 1914.

CAPTAIN ALBAN ANDERSON MEADEN was also educated at Barr's, where he gained the Lawrence gold medal and scholarship. He took the M R C S and L R C P, London, in 1902, entered as Lieutenant on 30th January 1904 and became Captain on 30th July 1907. His last station was Colchester.

LIEUTENANT ROBERT VALENTINE DOLBEY was educated at London Hospital took the M R C S and L R C P, London, in 1902, the M B, London, in 1903, the M S and the L R C S, England, in 1905. He was recently in practice at Vancouver, British Columbia, and received a temporary commission in the R A M C on 15th August 1914.

On 17th November 69 casualties were reported, 16 officers were killed, including Brigadier Generals Charles Fitz Clarence, of the Guards, and Norman McMahon, and Lieutenant M Richardson, R A M C, 36 wounded, and 17 missing.

LIEUTENANT MARK RICHARDSON had only qualified during the year 1914, and received a temporary commission on 29th August 1914.

On 18th November, 23 officers were reported killed, 53 wounded, and 5 missing, total 81. Captain W Longhnan, R A M C, was among the wounded. It was stated that Captain A A Meaden, reported wounded and missing the day before, was a prisoner, and Captain C W Holden, previously reported missing, was also a prisoner.

CAPTAIN WILLIAM FRANCIS MARY LONGHMAN took the L R C S I and L R C P I in 1904, the D P H of the Irish Colleges in 1905, and the D T M and Hyg, Cambridge, in 1912. After serving as senior Resident Surgeon and Registrar at the Garvis Street Hospital, Dublin, he entered as

Lieutenant on 30th July 1906, becoming Captain on 30th January 1910. He was recently stationed at Aden.

On the 19th the number of casualties was 101, killed 40, wounded 61, missing 10, on the 20th there were 51, killed 11, wounded 35, missing 5, no medical officers.

On the 21st 73 casualties were reported, killed 11, wounded 53, missing 9. Major A W A Irwin and Lieutenant A Watson, R A M C, were among the wounded.

MAJOR ALFRED WILLIAM ADAMSON IRWIN took the L R C S I and L R C P I in 1899, and after serving as a Civil Surgeon in the South African Field Force, entered as Lieutenant on 1st July 1901, became Captain on 1st July 1904, and Major on 1st July 1913. He was recently stationed at Cloumet.

LIEUTENANT ALLAN WATSON was educated at Edinburgh, where he took the M B and Ch B in 1909, the D T M and Hyg in 1910, and the D P H of the Edinburgh Colleges in 1912. After serving as senior House Surgeon at the East Suffolk Hospital, Ipswich, he entered the R A M C, as Lieutenant on 30th January 1914.

A NUMBER of casualties in the British and Indian Expeditionary Force in East Africa were published in the *Times* of 14th, 17th and 23rd November. British officers killed 11, wounded 13, missing 7, total 31, and Indian officers 8 killed and 9 wounded. Captain C T Conyngham, R A M C, was among the killed, Captain A E Griseewood, I M S, wounded, and Lieut N M Mehta, I M S, missing.

CAPTAIN CECIL TAYLOR CONYNGHAM was the son of Mr Henry Conyngham of Dublin, and was born in 1883. He was educated at St Andrew's College and at Trinity College, Dublin, where he took the M B, B Ch, and B A O in 1906, entered the Army on 29th July 1907, and became Captain on 29th January 1911. He was recently stationed at Mhow. He was a noted athlete, especially as a swimmer, and as a member of the Dublin Wanderers Rugby Football fifteen.

CAPTAIN ARNOLD EGBERT GRISEWOOD was born on 5th February 1882, educated at Liverpool, where he took the M B and Ch B in 1904 and entered the I M S as Lieutenant on 2nd February 1907, becoming Captain on 2nd February 1910. He was recently stationed at Nagpur, as Chief Plague Officer of the Central Provinces.

LIEUTENANT N M MEHTA was educated at the Grant Medical College, Bombay, and at Middlesex and London Hospitals, and held the diplomas of L M and S, Bombay, and M R C S and L R C P, London. He entered the I M S as Lieutenant on 26th July 1913. On 29th November he is reported to have rejoined.

From the 23rd to the 27th November the number of casualties reported was somewhat less, 177 for the five days, 61 killed, 104 wounded, and twelve missing. Lieutenant W H Lister, R A M C, was reported wounded on the 23rd, and Captain C J Coppinger, R A M C, on the 25th.

LIEUTENANT W H LISTER had only recently qualified. He received a temporary commission in the R A M C on 8th August 1914.

CAPTAIN CHARLES JOSEPH COPPINGER was born on 5th November 1850, educated at Trinity College, Dublin, where he took the M B, B Ch, and B A O in 1904, and entered the I M S as Lieutenant on 1st February 1905, becoming Captain on 1st February 1908. On 31st March 1911 he entered the R A M C by exchange with Captain W S Newell.

The *Times* of 28th November reported 33 casualties, 14 officers killed, 14 wounded, and ten missing. Among the first was Major E B Steel, R A M C, who died of wounds, Captain H G Robertson was reported missing, and it was stated that Lieutenant J L Jackson, formerly reported missing, was a prisoner.

MAJOR EDWIN BEDFORD STEEL was educated at Trinity College, Dublin where he took the M B and B Ch in 1893, entered the Army as Surgeon Lieutenant on 29th January 1895, became Surgeon Captain on 29th January 1898, and Major on 29th October 1906. He was recently stationed at Netley.

CAPTAIN HUGO GIVEN ROBERTSON took the M B and B Ch at Glasgow in 1908 entered the Army on 31st July 1909, and became Captain on 31st January 1913. Malta was his last station.

LIEUTENANT JOHN LUKE JACKSON was educated at Belfast, where he took the M B and B Ch in 1910. He received a temporary commission as Lieutenant on 10th August 1914.

The *Times* of 30th November contained reports of 60 casualties in the Expeditionary Force. 23 officers were killed, 26 wounded, and four missing. It was stated that Captain

A M Rose, R A M C, previously reported wounded and missing, and Lieut H A Winter, R A M C, previously missing, were prisoners. Two more officers were reported as killed in the Persian Gulf, and six, previously stated to be missing, in East Africa. Lieut N M Mehta, I M S, reported missing in East Africa, has rejoined.

CAPTAIN ALEXANDER MACGREGOR ROSE was educated at Aberdeen where he took the M B and B Ch. in 1899, and the D P H in 1901. After acting as Assistant House Surgeon at the Cumberland Infirmary Carlisle and House Physician at the General Lying in Hospital in York Road London, he entered the Army as Lieutenant on 31st July 1905, becoming Captain on 31st January 1909. He was recently stationed at Longmoor.

THE Navy has also suffered severely of late. In the action fought off the Chilean Coast at the end of October or beginning of November, (the exact date has not been stated), the *Good Hope* and *Monmouth* appear to have been sunk with all hands. The former carried three medical officers, J J Walsh, F C Scarle, and F L J M de Vestenil, the latter two, H Woods and A G Tonkinson. The battleship *Bulwark*, blown up at Sheerness on the morning of 26th November, with the loss of between 750 and 800 lives, practically the whole ship's complements, also carried three Surgeons, P K Nix, W Miller, and R T Brothie.

FLEET SURGEON JAMES J WALSH took the M B and B Ch of the Royal University, Ireland in 1885, and entered the Navy as Surgeon in August 1885, attaining his present rank in August 1901. He was medical officer to the R N Dockyard and sick quarters, Sheerness, till appointed to the *Good Hope* in 1913.

SURGEON FRANCIS CHARLES SPARLE was educated at Bath's, took the M R C S and L R C P, London, in 1908, the M B and B S, London, in 1909, and after serving as Prosecutor at the College of Surgeons and Resident Medical Officer of Finsbury Dispensary, entered the Navy in November 1909 joining the *Good Hope* in July 1914.

SURGEON FERDINAND LOUIS J M DE VESTENIL came of a West Indian family, was educated at Edinburgh University, King's College London, and St Thomas'. Took the M R C S and L R C P London, in 1904, the M B and B Ch B Edinburgh, in 1908, and the M D in 1909. He had served in the Trinidad Medical Service and in the Royal Navy, and was recently in the Royal Naval Reserve, till called up for the war, joining his ship on 27th August 1914. He had translated Dr Maisonneuve's *Experimental Prophylaxis of Syphilis*.

STAFF SURGEON HENRY WOODS was educated at Liverpool, and took the M B and B Ch B Vict in 1903, joined the Navy in November 1903, and was promoted to Staff Surgeon in May 1912. He was stationed at the Naval Barracks, Devonport, till appointed to the *Monmouth* on 1st August 1914.

SURGEON ALBERT JOSEPH TONKINSON was educated at London Hospital, and after taking the M B and B S, London, in 1911, served as Pathological Assistant at London Hospital, and Assistant Medical Officer, St John's Hill Infirmary, Wandsworth, before entering the Navy in October 1913. He joined his ship on 1st August.

FLEET SURGEON PERCIVAL KENT NIX was educated at Cambridge and the London Hospital, and took the M B and B O, at Cambridge in 1896. He joined his ship on 4th June 1912, and attained his late rank on 10th November 1912.

SURGEON WILLIAM MILLER took the M B and B Ch B, Glasgow in 1906, and after serving as House Surgeon and House Physician of the Victoria Infirmary, Glasgow, joined the Navy on 14th May 1909, and was posted to the *Bulwark* on 29th July 1914.

SURGEON ROBERT TRAILL BROTHIE was educated at London Hospital, where he was Editor of the *London Hospital Gazette*, took the M R C S and L R C P, London, in 1913 and after serving in the British Red Crescent Hospital in Tripoli, settled in practice at Talbot Loch Tyne, Argyllshire, where he was Medical Officer of Health. He joined the Royal Naval Volunteer Reserve on 12th February 1914, and was called up for the war and posted to his ship on 29th July 1914.

CAPTAIN BRAIN COLDEN ANTILE POCKLEY, of the Austrian Forces, was killed while serving as medical officer of the force which reduced German New Guinea, at the early age of 24. He was the son of Dr F Antill Pockley, of Macquarie, Sydney, was educated at the North Sydney Church of England Grammar School, and at Sydney University, where he took the M B and B Ch M in 1914. He had taken of his coat, with the Red Cross badge to wrap round a wounded sailor sent to the rear, and, while attending to the other wounded, in his shirt sleeves, was shot by a German, who stated in excuse that he did not know that he was a medical officer, in the absence of the Red Cross badge.

THE *British Medical Journal* of 14th November states that, up to that date, the medical staff of the German armies had lost no less than 135 officers killed, wounded, and missing, of whom 74 had been killed in action. Among them is Professor Friedrich König, Professor of Surgery in the University of Marburg, killed in action on the Eastern front in Germany. The Iron Cross has been bestowed upon 120 medical officers. In the whole of the Franco German war, in which of course the numbers engaged were much smaller, only eleven German medical officers were killed or died of wounds. The losses in the British forces up to the end of November, comprise 41 medical officers killed, viz, 25 of the R A M C, including Special Reserve, territorials, temporary surgeons, &c, 13 of the Royal Navy, in ships sunk, and three others, one West African medical officer killed in the Cameroons, one medical officer of the Austrian forces, killed in German New Guinea, and a medical man killed while acting as cyclist despatch rider in Flanders.

SURGEON MAJOR MARK ROBINSON, Madras Medical Service, retired, died suddenly at Wandsworth on 10th November 1914, aged 65. He was born in 1849, educated at St George's, took the M R C S and L R C P, London, in 1872, and entered the I M S as Surgeon on 1st April 1873, becoming Surgeon Major on 1st April 1885, and retiring on 11th June 1891. The Army List assigns him no war service.

DR EDWARD FOULER GREENHILL, M R C S, L R C P, died at Goldie's Green, London, on 25th November, aged 57. He was one of the leading private practitioners in Calcutta thirty years ago, a few men may still remember him. His name no longer appears in the *Medical Directory*, so he must have retired from practice some time ago.

THEIR Majesties the King and Queen, with Surgeon General Sir Richard Havelock Chiles, President of the India Office Medical Board, in attendance inspected the base hospital for Indian wounded, at Brokenhurst, near Bournemouth, on 17th November.

THE PASSING OF ROBERTS

ON Wednesday 11th November, the late Field Marshal Earl Roberts of Kandahar and Pretoria went over to France. On arrival at Boulogne he inspected one of the Indian hospital ships the *Glengorm Castle*, of which Lt Colonel Prial, I M S, is Principal Medical Officer and afterwards motored to the head quarters of the British Expeditionary Force, some forty miles. On the 12th he motored round the positions, visiting the Indian troops. The weather at the time was bitterly cold. On the 13th he contracted a chill which developed into congestion of the lungs and pleurisy and proved fatal at 8 P M on 14th November. Thus died the greatest British soldier of the past half century, if not actually in action, yet on active service, within sound of the guns, and among the troops whom he had so often led to victory, and whom he loved, and who loved him, so well. *Felix opportunitate moris*.

Appropriate tribute to the dead soldier's career was paid in Parliament on 17th November, in the House of Lords by Lords Kitchener, Curzon (in the absence of the Marquis of Lansdowne owing to illness) and Crewe, in the House of Commons by Messrs Asquith, Borden, Law and Redmond. The Premier stated that a memorial would be erected to his memory at the public expense. He was buried in St Paul's on 19th November, where he lies near his great precursors, Nelson and Wellington.

In the *Times* of 17th November was notified the grant of nine Victoria Crosses, the first given in the present war. Three of the recipients had since been killed or died of wounds, before the grant of the Cross could be made. Among them was one medical officer, who had died of his wounds, Captain Harry Sherwood Ranken, R A M C. "For tending wounded in the trenches under rifle and shrapnel fire at Houtviesnes on 19th September, and on 20th September continuing to attend to wounded after his thigh and leg had been shattered."

Several other V C's have since been conferred.

In the *Times* of 12th November was notified the grant of the Distinguished Service Medal to a number of non commissioned officers and privates, including two privates of the R A M C, N Freshwater and J Kendrick. A third has since been granted.

Pte N Freshwater (14865), R A M C, for gallantry on October 22nd, in leading a party of stretcher bearers in daylight, under heavy rifle fire for a quarter of a mile, to bring back a wounded sergeant.

Pte J Kendrick (439) R A M C, for gallantry and devotion in remaining in a small house in charge of two wounded men of the King's Royal Rifle Corps and five very badly wounded Germans whom it was impossible to remove. After giving all his rations and water from his water bottle to the wounded, he proceeded to be nearest outpost, under fire in an endeavour to obtain more water for them.

Lance Corporal J Jones, No 5 Field Ambulance, R A M C, for bravery on September 4th at Port Aisy in carrying in under a heavy fire Sergeant Stansfeld, 49th Battery, Royal Field Artillery, who was dangerously wounded

Medaille Militaire

An Army Order issued on November 7th states that the President of the French Republic has, with the approval of His Majesty the King, bestowed the French military medal for conspicuous services on the following warrant officers, non-commissioned officers and men of the Royal Army Medical Corps, serving with the British Expeditionary Force, in recognition of their gallantry during the operations between the 21st and 30th August —

Sergeant Major G W Cannell
Quartermaster Sergeant R Craig Blair
Private H Funn
Private A Goodfellow
Sergeant-Major A T Hasler
Private H G Jupp
Sergeant Major E R Loft
Sergeant H M Prince
Private A V Swain

SECOND class Military Assistant Surgeon H L O Fleming, in charge of the dispensary attached to the house hold of His Excellency the Governor of Bengal, is appointed to be an Apothecary at the Presidency General Hospital, with effect from the forenoon of the 8th November 1914

THE services of the under mentioned officers are placed temporarily at the disposal of the Government of India in the Home Department, with effect from the dates noted against their names —

- 1 Major J B Christian, I M S, forenoon of the 18th November 1914
- 2 Lieutenant Colonel C R Stevens, I M S, afternoon of the 20th November 1914

THE following Indian Medical Practitioners have been selected by the Director General of the Indian Medical Service for temporary military employment in addition to those already mentioned — Dr Kapur and Bose, Calcutta, Dr Ghandari, at present plague officer at Karnal, the Punjab

VON EISELBERG is Surgeon General of the Austrian Army and B I E R of the German Army, but we are not yet allowed to know who is Surgeon General of the Indian Expeditionary Forces in Europe. Col P Helm is P M O up in the Persian Gulf

CAPTAIN D L GRAHAM, M B, I M S, and Capt John B D Hunter, I M S have taken the Fellowship of Royal College of Surgeons, Edinburgh, at the examination held in July last

THE services of third class Assistant Surgeon W E Cody, I S M D, are placed at the disposal of the Director, Medical Services in India, with effect from the 12th September 1914

THE services of Major S P James, M D, I M S, Special Malarial Research Officer, Assam, are placed temporarily at the disposal of the Military Department with effect from the afternoon of the 21st November 1914

THE furlough granted to Mr L G Fink, M B, C M, in Burma Government Notification No 40, dated the 1st February 1913, has been commuted by His Majesty's Secretary of State for India into leave on medical certificate and extended by three months

THE services of the following officers of the Indian Medical Service are replaced at the disposal of the Government of India Army Department, with effect from the dates on which they relinquished charge of their duties in this province — Lieutenant Colonels J M Crawford and C Milne, Majors W M Penison and W Lapsley Civil Surgeons, and Captain T D Murison, officiating chief plague officer

LIEUTENANT COLONEL BHOLA NATH, I M S, is appointed to hold charge of the Medical Store Depot, Rangoon, in addition to his own duties, with effect from the forenoon of the 25th November 1914

THE services of the undermentioned officers are placed temporarily at the disposal of His Excellency the Commander in Chief in India —

Lieutenant Colonel C R Stevens, M D, F R C S, I M S
Major J B Christian, I M S
Major V E H Lindsey, M B, I M S

THE services of the undermentioned officers are placed temporarily at the disposal of His Excellency the Commander in Chief in India —

Lieutenant-Colonel E R Paily, M B, I M S, Major A B Fry, M D, I M S, Major W G Hamilton, D H P, I M S,

Major J M Woolley, M D, I M S, Captain A M Jukes, M D, I M S, Captain D P Gail, M B, I M S, Captain K K Mukerjee, I M S, Captain R B Lloyd, M B, I M S, Captain F H Salisbury, M B, I M S, and Captain A Donham White, M B, I M S.

CIVIL ASSISTANT SURGEON KANHAIYA LAL GUPTA, attached to the Sadi Dispensary, Unao, to hold civil medical charge of that district, in addition to his own duties, *vice* Lieutenant N S Harvey, I S M D, transferred

RETIRED CAPTAIN F BEDFELL, I S M D, is appointed as Civil Surgeon, Naini Tal, as a temporary measure, with effect from the date he assumed charge of his duties

DR H M DOWLER is appointed as Civil Surgeon, Mussoorie, as a temporary measure, with effect from the date he assumed charge of his duties

RETIRED CIVIL SURGEON RAI MUNNA LAL BAHADUR is appointed as Civil Surgeon, Rae Bareilly, as a temporary measure, with effect from the date he assumed charge of his duties

DR ELGAR E EVANS is appointed as Civil Surgeon, Mirzapur, as a temporary measure, with effect from the date he assumed charge of his duties

DR M MORTON is appointed as Civil Surgeon, Muttra, as a temporary measure, with effect from the date he assumed charge of his duties

SENIOR ASSISTANT SURGEON AND HONORARY LIEUTENANT MICHAEL GALVIN, *seconded*, to be Senior Assistant Surgeon, with the honorary rank of Captain, subject to His Majesty's approval, and to remain *seconded*

Senior Assistant Surgeon and Honorary Lieutenant Alfred Greenwood, to be Senior Assistant Surgeon with the honorary rank of Captain, subject to His Majesty's approval, and

First Class Assistant Surgeon Samuel George Wood, to be Senior Assistant Surgeon, with the honorary rank of Lieutenant, subject to His Majesty's approval,

THE services of the undermentioned officers are placed temporarily at the disposal of His Excellency the Commander in Chief in India —

Lieutenant Colonel J Enticam, M D, M CH, D P H, I M S
Major H A Williams, M B, D A O, D S O, I M S
Captain R Kelsall, M B, I M S
Captain L A H Lack, M B, I M S

IN modification of the Home Department Notification No 478 C, dated the 25th November 1914, Lieutenant-Colonel J Gould M B, I M S, Assistant Director General, Indian Medical Service (Stores), is appointed to be Deputy Director General, Indian Medical Service, *substantively pro tempore* during the absence of Brevet Colonel B G Seton, V H S, I M S, on other duty or until further orders

MAJOR H A WILLIAMS, D S O, I M S, Civil Surgeon, Mandalay, is placed in charge of the Central Jail, Mandalay, in addition to his own duties, as a temporary measure, in place of Captain P K Tirapore, I M S, whose services have been replaced at the disposal of the Government of India

SENIOR MILITARY ASSISTANT SURGEON AND HONORARY LIEUTENANT E J MURPHY, who has been appointed to be Civil Surgeon Mandalay, as a temporary measure, in place of Major H A Williams D S O, I M S, is placed in charge of the Central Jail, Mandalay, in addition to his own duties, as a temporary measure in place of Major H A Williams, D S O, I M S, whose services have been replaced at the disposal of the Government of India

MR C B BARRY, Assistant Commissioner, Lahore, as *summed* temporarily executive charge of the office of Superintendent of the Borstal Central and Female Jails, Lahore, on the forenoon of the 18th November 1914, relieving Major E L Ward, I M S

LIEUTENANT N S HARVEY, I S M D, Civil Surgeon, from Unao to Budaun

MAJOR T HUNTER, I M S, Civil Surgeon, from Naini Tal to Moradabad

MAJOR G HUTCHESON, I M S, Civil Surgeon, from Mussoorie to Aligarh.

MAJOR W M PEARSON, I M S, Civil Surgeon, from Muzpur to Benares

DR E E DAVIS who has been employed temporarily in charge of the railway hospital, Moradabad, held medical charge of the railway administration from the 24th October 1914 to the 20th November 1914 in addition to his own duties, *vice* Major Willmore, I M S, reverted to military duty

LIEUTENANT COLONEL J ENTRICAN, I M S, military medical officer, Jhansi, to hold civil medical charge of that district, in addition to his military duties, as a temporary measure

MAJOR O R BAKHLE, I M S, AND DR G J HINGORANI respectively delivered over and received charge of the Sukkur Prison, on the 1st December 1914, after office hours

HIS Excellency the Governor of Bombay in Council is pleased to appoint Lieutenant Colonel J B Smith, M B, M Ch (R U-I), D P H, D T M and H (Cantab), I M S, on special duty

THE following officers are permitted to exchange with effect from the 23rd November 1914 —

Major T S Novis, I M S, Medical Officer from the Bombay Volunteer Rifles to the Bombay Light Horse
Captain S A Powell, Medical Officer from the Bombay Light Horse to the Bombay Volunteer Rifles

LIEUTENANT COLONEL D T LANF, M D, I M S, is appointed Chief Malaria Officer, Punjab, in addition to his duties as Chief Plague Medical Officer

MAJOR H W OVERBECK WRIGHT, I M S, recently Superintendent, Central Asylum, Agra, has been appointed Superintendent of the Lahore Asylum, *vice* the late Lieutenant Colonel Ewens, but meantime he has reverted temporarily to military duty

MAJOR H M MACKENZIE, I M S, is appointed sub *pro tempore* Deputy Sanitary Commissioner, Muzee, Punjab

CAPTAIN A H H ROBSON, I M S, sub *pro tempore* as Superintendent of the Lahore Asylum

DR K A RAHMAN, M B (Edin), D P H, is appointed an Additional Deputy Sanitary Commissioner, Punjab, for one year

THE services of Major S P James, M D, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India, with effect from the afternoon of the 21st November 1914

THE services of Lieutenant Colonel S Browning Smith I M S, are placed permanently at the disposal of the Government of the Punjab for employment in the Sanitary Department, with effect from the 13th November 1914

MAJOR R S CHRISTOPHERS, M B, I M S, Assistant Director Central Research Institute, Kasauli, is appointed to be Director of that Institute, substantively *pro tempore* with effect from the 1st December 1914 and until further orders

THE Viceroy and Governor General has been pleased to make the following appointment on His Excellency's Personal Staff

To be Honorary Surgeon

Lieutenant Colonel T A Granger, M B, I M S, Assistant Director, Medical Services in India, *vice* Surgeon General G F A Harris M D, I M S, whose tenure has expired. Dated 16th September 1914

THE services of Major E Bisset, I M S, Deputy Sanitary Commissioner are replaced at the disposal of the Government of India Army Department with effect from the date he relinquished charge of his duties

CIVIL ASSISTANT SURGEON DALIP SINGH KATWAL attached to the Sadi Dispensary, Gonda, to hold civil medical charge of that district in addition to his own duties, *vice* Major Lapsley, I M S, reverted to military duty

RETIRED CIVIL SURGEON DR E J SIMPSON is appointed as Superintendent, Central Prison, Lucknow, as a temporary measure, with effect from the date he assumed charge of his duties

RETIRED CAPTAINS E P CLEMENTS G HYNES AND W BRATHCOCK, I M S, are appointed as Superintendents, Central Prisons, Benares, Fatehgarh and Bareilly respectively, as a temporary measure, with effect from the dates on which they assumed charge of their duties

RETIRED CAPTAIN E P CLEMENTS, I M S, Temporary Superintendent, Central Prison, Benares, to hold civil medical charge of the Benares district, in addition to his own duties, *vice* Major Pearson, I M S, reverted to military duty

RAI QANAUJI LAL BAHADUR, Civil Surgeon, Jalaun, on return from leave, to officiate as Chief Plague Officer, United Provinces, *vice* Captain Munison, I M S, reverted to military duty

THE services of Major H Innes, I M S, Civil Surgeon, Kamrup, are placed temporarily at the disposal of the Military Department, with effect from the forenoon of the 1st December 1914

DOMESTIC OCCURRENCE.

KEYWORTH—PARSONS On October 23rd, 1914, at St Thomas' Cathedral, Bombay. Wilham David Keyworth, Captain, I M S, B A, M B, B C (Cantab), M R C P (Lond), eldest son of Edwin Keyworth, Esq, of Tinnevely to Mary Louisa, eldest daughter of John Parsons, Esq, of Richmond, Surrey, England

LIEUTENANT COLONEL GIMLETTE, C I E, I M S, is P M O of the temporary Hospitalship *Sacra*, Major E O Thurston, F R C S, I M S, was also on board during November

LIEUTENANT COLONEL J N MACLEOD was P M O of the Hospitalship *Gulford Castle* and since then Lieutenant Colonel Gilbert took charge, Major Boldich Leicester and D Munro were also serving in November on Hospital ships

MAJOR F WALL and MAJOR BAMFIELD during November were in charge of Base Hospitals on hills near Boulogne

DURING Christmas week Major Windsor, Major W V Coppinger and Captain H Dutton, have received orders to be ready for military duty

MAJOR E E WATERS, I M S, Civil Surgeon, Howrah, is allowed privilege leave combined with furlough for twelve months, *viz*, privilege leave for two months and ten days under Article 260 of the Civil Service Regulations and furlough for the remaining period under Article 308 (b) of the Regulations, with effect from the 26th September 1914

LIEUTENANT COLONEL A GWYTHYR, I M S, is placed on general duty at the Medical College, Calcutta, with effect from the forenoon of the 21st November 1914, or until further orders

CAPTAIN A S M PEEBLES, I M S, Superintendent, Central Lunatic Asylum, Benhamore, is appointed to act as Civil Surgeon of Murshidabad, in addition to his own duties, with effect from the afternoon of the 24th September 1914, or until further orders

CAPTAIN PIERPOUNT, I M S, has been appointed an Interpreter in Japanese

FIRST CLASS MILITARY ASSISTANT SURGEON R T RODGERS, Superintendent, Central Jail, Jubbulpore, was deputed on special duty to the Naini Central Jail

ON recall from leave, Lieutenant Colonel W D Hayward, M B I M S, Medical Storekeeper to Government, assumed charge of the Medical Store Depot, Madras, on the 9th September 1914, forenoon

Major C F Marr, M B, I M S, officiating Medical Storekeeper to Government, on transfer from the Medical Store Depot, Madras, assumed charge of the Medical Store Depot, Calcutta, on the 21st September 1914, afternoon

Major C F Mathew, I M S, officiating Medical Storekeeper to Government, on transfer to Medical Store Depot, Bombay, relinquished charge of the Medical Store Depot, Calcutta, on the 15th September 1914, afternoon

Assistant Surgeon C W T Montgomery, Indian Subordinate Medical Department, held charge of the Medical Store Depot, Calcutta, from the 15th September 1914, afternoon, to the 21st September 1914, afternoon

ON 10th and 11th December only 20 casualties were reported, eight officers killed and twelve wounded. It was also stated that eighteen officers, previously missing, were prisoners. They included one medical officer, Lieutenant J E Hepper

ON the 12th December nineteen casualties were published, four killed, fourteen wounded, and one missing. Among the

wounded were Captain G H Stack and Lieutenant J P Charnock, of the R A M C. It was also reported that eleven officers, formerly missing, were prisoners, they included Major A G Thompson, Lieutenant J R Hayman and Lieutenant W A Russell, of the R A M C.

CAPTAIN GEORGE HALL STACK was educated at Trinity College, Dublin, where he took the M B, B Ch, and B A O in 1907, entered the Army as Lieutenant on 1st August 1908, and became Captain on 1st February 1912. He was recently stationed at the R A M C College.

LIEUTENANT JOHN PHETHEAN CHARNOCK was educated at Edinburgh where he took the M B and Ch B in 1910. He has filled the posts of House Surgeon of St Mary's Hospital, Manchester, Junior House Surgeon of the Royal South Hants Infirmary Southampton, and Assistant Medical Officer of St Mary's Hospital, Plaistow, and was in practice at Bolton, Lancashire. He joined the Special Reserve of the R A M C as Lieutenant on 28th October 1910, and was called out for service on 10th August 1914.

MAJOR ALBERT GEORGE THOMPSON took the M B and C M at Edinburgh in 1891, and got his first commission as Lieutenant from 27th July 1892, becoming Captain on 27th July 1895, and Major on 27th July 1904. He served in the South African War, in the Orange River Colony, and received the Queen's Medal with two clasps. In 1905 he took the D P H of the Scottish colleges. He was recently stationed at Pichmahli, in the Central Provinces.

LIEUTENANT JOHN ROLLO HAYMAN was educated at Middlesex Hospital, took the M R C S and L R C P, London in 1911, and entered the Special Reserve of the R A M C as Lieutenant on 13th March 1912, being called out for service on 10th September 1914. *The Medical Director* shows him as Senior House Surgeon of Macclesfield General Infirmary, and gives his address as Taunton, Somerset.

LIEUTENANT WILFRID ALAN RUSSELL was educated at the University of Cambridge, where he passed the B A, and at Brit's, took the M R C S and L R C P, London, in 1911, and took up a temporary commission as Lieutenant, R A M C, on 10th August 1914.

On 14th December 61 casualties in all were reported. In the British Expeditionary Force in Flanders ten officers were killed, and 29 wounded, in the Indian force two British officers were killed, two wounded, and one missing, of Native officers three killed and three wounded, one British and eight Native officers were reported as wounded in the Persian Gulf, and two British officers wounded at Tsingtau. No medical officers were among these casualties.

The three days 15th to 17th December, returned 36 casualties eight officers killed, 27 wounded and one missing. On the 15th none were returned as killed. On the 17th Captain A C Osburn, R A M C, was reported wounded.

CAPTAIN ARTHUR CAPT OSBURN, R A M C, was educated at Guy's Hospital and King's College, London and took the M R C S and the L R C P, London, in 1902. After acting as Clinical Assistant to the Children's Hospital, Shadwell, he entered the Army as Lieutenant on 1st August 1903, becoming Captain on 28th February 1907. He was recently stationed at Netley. He served in the Imperial Yeomanry during the South African War, in 1899-1900, and took part in the operations in the Transvaal, including the action near Johannesburg, in the Orange River Colony and in Cape Colony, receiving the Queen's Medal with two clasps.

D S O

THE *London Gazette* of 9th December announces the appointment of twenty more officers to the Companionship of the Distinguished Service Order. Three of the twenty, however, have died. Among them are three officers of the R A M C.

Lieutenant Henry Beddingsfield, M B, R A M C—For coolness and daring in repeatedly superintending removal of wounded from the firing line under heavy fire.

Major Sidney George Bullei, R A M C, at M, on September 15—For coolness and courage in continuing all day to collect wounded under severe shell fire.

Captain Malcolm Leckie, R A M C, deceased—For gallant conduct and exceptional devotion to duty in attending to the wounded at Frameries, where he was himself wounded.

CAPTAIN MALCOLM LECKIE's name had already appeared in the casualty lists as wounded, but his death had not previously been reported. He was educated at Guy's Hospital, took the M R C S and L R C P London in 1907, and entered the Army as Lieutenant on 4th February 1908, becoming Captain on 4th August 1911. He was recently attached to the Egyptian army.

LIEUTENANT COLONEL EDMUND WILKINSON, Bengal Medical Service, retired on 13th November 1914. He was born on 9th January 1867, took the M R C S and L R C P, London, in 1888, the D P H, Cambridge, in 1891, and

the F R C S, England, in 1892, and entered the I M S as Surgeon on 28th January 1891. He became Major on 28th January 1903, and Lieutenant Colonel on 28th January 1911. He served on the North West Frontier of India in the Waziristan Expedition of 1891-95, and again in 1897-98 in the Mohmand and Buner Campaigns, and was present at the action of the Tangra Pass, receiving both the first and the second frontier medals, each with a clasp. Most of his service was spent in Civil employ in the Sanitary Department in the Punjab, where for five years he had been Sanitary Commissioner. He had been on leave since 13th February 1913 and has been appointed one of the Medical Inspectors of the Local Government Board in England.

LIEUTENANT COLONEL GEORGE YEATES COBB HUNTER, Bengal Medical Service, retired on 25th October 1914. He was born on 15th February 1868, educated at St George's, took the M R C S and L R C P, London, in 1890, and entered the I M S as Surgeon Lieutenant on 30th January 1893, becoming Surgeon Captain on 30th January 1896, Major on 17th November 1905, and Lieutenant Colonel on 17th November 1913. He had lost 10½ months' seniority by being for that period in temporary half pay, owing to ill health. *The Army List* assigns him no war service. Most of his service was spent on Civil employ, in the Jail Department in Bengal and Central Provinces, but for the last 3½ years, since 30th March 1911, he had been on sick leave.

DEPUTY SURGEON GENERAL WILLIAM HENRY HARRIS, Madras Medical Service, retired, died at Shanklin, Isle of Wight, on 11th December 1914. He was born on 10th February 1830, educated at the London Hospital, took the M R C S in 1851 and the L S A in 1852, also the M D of St Andrews in 1859, and entered the I M S as Assistant Surgeon on 13th February 1853. He became Surgeon on 13th February 1865, Surgeon Major on 13th February 1873, and Brigade Surgeon, on the institution of that rank, on 27th November 1879, retiring with an honorary step, on 1st July 1881. For some years before his retirement he held the posts of Superintendent of the Madras Lying-in Hospital, and Professor of Midwifery in the Madras Medical College. In his early years of service he served in both the Crimea and the Mutiny, Crimea 1855, siege and fall of Sevastopol, the attack on the Redan on 18th June and the battle of Tchernaya, receiving the medal with clasp and Turkish medal, India, 1857-58, operations before Kalpi, capture of Lucknow, surrender of forts Ahmat and Thankpur, and subsequent operation in Oudh, medal.

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Original Articles.

SURGICAL SURVEY OF THE CASUALTIES IN MESOPOTAMIA

By C H BARBER,

CAPT, I M S,

Surgical Specialist to No. 9 Indian General Hospital,

AND

E E DOYLE,

CAPT, I M S,

X-ray Specialist

BETWEEN the dates 15th November and 8th December, 1914, some 600 odd casualties—Indian, Turkish, and Arabian—were received into No 9 Indian General Hospital, the great majority at first hand, save for, in most cases, the first field-dressing. After the action on November 17th, over 300 casualties were received on the 18th, practically direct from the field on to the ship in which at that time the *personnel* of two sections of the hospital had shortly before arrived.

Most of the injuries were bullet wounds, and of the many bullets found and extracted a very large proportion were of the solid, soft lead, round-pointed variety with a calibre of about 400, and spoken of by the Turkish officers as the '*Grand Mauser*'.

A considerable number, perhaps 15 per cent of '*Spitze*' nickel-plated, sharp-pointed '*Petit-Mauser*' bullets with a compressed lead core and a calibre of about 311, were also extracted, and a very few solid lead 500 bore, whilst the number of shrapnel bullets found might be put down at 5 per cent.

Wounds that could be definitely stated to be shell wounds as distinguished from shrapnel were rare. They were more frequent amongst the wounded prisoners than amongst our own men.

A large number of bullets were found lying just beneath or near the skin on the side of the body or limb opposite to that of entry and were very easily removed without an anæsthetic.

The amount of damage caused by the bullets varied very much according to the site of injury, the resistance met with in the tissues, and the kind of bullet causing the injury. A perforating wound of the soft parts, unless made by a large bullet at short range, was an insignificant injury if nerves and arteries escaped, but if it were made by a large bullet at short range the result was a large entrance wound and a still larger contused and lacerated exit wound. The small high velocity bullet at short range did not produce this effect to so marked a degree unless it hit a bone. The slight perforating wounds healed rapidly, considerably more rapidly when inflicted by the small high velocity '*Spitze*' or Lee-Enfield than when made

by the '*Grand Mauser*'. This was particularly noticeable in the case of the Arab prisoners whose small perforating wounds made by our own bullets were very soon repaired. This was especially the case with the wounded prisoners received from the last action at Kurna, when our hospital was established on land near Busra, and when the prisoners, accommodated in single-fly tents on the outskirts of the hospital area, had the benefit of fresher air and less overcrowding than had our own men in the main hospital.

But the greater the amount of resistance met with, the greater the damage to the tissues, the small high velocity bullet hitting the shaft of a long bone squarely generally caused a very severe smashing and splintering of the bone and a large lacerated gaping exit wound, with the loss of a considerable quantity of blood. We had a large number of these wounds amongst the prisoners, chiefly affecting the thigh, and they all, I think without exception, arrived, after many hours exposure, in a very septic condition, then treatment on board an improvised hospital ship was most difficult. The '*Grand Mauser*' caused similar but not such extensive damage in our own men, but the bullet in this case did not always smash the bone but was itself sometimes split up into several fragments. Skiagram No 1 illustrates this point. The three or four large pieces were subsequently removed in this case.

On the other hand the small bullet would generally drill a hole right through the cancellous ends of long bones or through such as the tarsal bones, whilst the '*Grand Mauser*' and the shrapnel either smashed the bone or became firmly embedded in it and were removed with some difficulty.

The high resistance of certain ligamentous structures to the passage of a bullet is well illustrated by the accompanying photographs, Skiagrams 2 and 2a, of a bullet lodged behind the knee in the ligament of Winslow. The entrance wound was very small and the bullet was a high velocity one—it was removed by an incision on the inner side of the knee.

The metallic case of the '*Spitze*,' again, in two or three cases, was found apart from its lead core in the form of an irregular, jagged, flat piece of metal which caused very considerable disintegration of soft tissues.

Comparable to this were cases in which the solid soft lead bullet had struck a hard bone such as the mastoid process and had flattened out or '*mushroomed*' to the size of an eight-anna piece.

Another marked difference between the bullets was seen in their after-effects if not immediately extracted.

I have seen no case of localized suppuration around a small high velocity bullet that has been left lying undiscovered in the tissues, whereas the 400 and 500 lead bullets almost invariably caused the formation of a localized abscess around

them which often led to their discovery before the X-rays were available. These abscesses appeared to have, as a rule, very little constitutional effect on their owners and rapidly healed up as soon as they were opened and the bullet removed.

The shrapnel bullet did not display the same tendency to suppuration.

Speaking more particularly of the biggest action on November 17th, the wounded were received by No. 9 Hospital from 20 hours to three days after the injuries had been inflicted, and on their way to us they had necessarily been subjected to several different moves, first from the fighting line to the Field Ambulances, by them to the camp on the river bank for the night, thence to small boats or lighters from which they were hoisted on to our ship. All this movement must have affected unfavourably the prognosis in such cases as abdominals and compound fractured thighs, etc., and increased the chance of sepsis in all cases.

In practically all cases a first field-dressing had been applied, but with the exception of the cleanest small perforating wounds they were all septic, more or less, according to the amount of exposure they had been subjected to, and to the quantity of mud and clothing that had found their way into the wounds. A few, even, of the apparently clean-drilled perforating wounds made by the '*Grand Muser*' bullet were later on found to have suppurated and formed small abscesses in the bullet track. This does not detract from the value of the first field-dressing which in my opinion is of very great value indeed, without it the condition of the wounds would have been incomparably worse, as was shewn in the case of some of the prisoners who had been retrieved later than the rest. In a few of the 300 odd cases we received on the 18th November, wounds that seemed urgently to require it had been re-dressed in the Field Ambulance, but for the most part the wounded necessarily arrived with the same dressings on as had been applied on the field of battle. The first field-dressings had generally been well applied and in the case of the small flesh wounds afforded adequate protection from further contamination, but they are much too small to be of much use in the case of the larger wounds.

We got only one case of bad primary hæmorrhage, and he was pulseless when he came on the table. Probably other fatal ones were seen on the battlefield. His was a very severe wound, probably caused by a shell, of the left forearm which was practically severed at the junction of the upper and middle thirds with rupture of all the vessels. In spite of all the measures we could take, he unfortunately died within the hour.

There have been no cases of secondary hæmorrhage up to the time of writing.

Bits of clothing and bullet wads, little circular bits of tough paper were found in the wounds in a few cases.

Wounds of the head, neck, and chest were responsible for most of the immediately fatal cases on the battlefield.

The most difficult and most unsatisfactory to treat were the compound comminuted fractures of the thigh. They were almost all septic and in most cases soon began to discharge pus, though one here and there escaped this fate. Fortunately with free drainage, constitutional symptoms were not marked, and they left for Bomaoy in good condition. These cases in the Arabs and Turks were especially bad, both by reason of the energy of our bullet, and the time they were exposed to dirt, etc., before medical aid reached them. After ten days with us these fellows were mostly taken over by the American Medical Mission here and are now all doing well 'in plaster'.

There have been a very large number of wounds in the hand. The entrance wound was usually in the palm, small and round, the exit wound large and lacerated on the dorsum, with, in most cases, compound comminuted fracture of one or more of the metacarpal bones as is well illustrated in No. 4 Skiagram. Most of these wounds were in the left hand, and in several there was a good deal of blackening of the skin around the entrance wound. They were all septic and healed by granulation somewhat slowly, and efforts made in a few cases to reduce the size of the exit wound by two or three stitches mostly failed. In only one or two cases was there bleeding from the palmar arches.

Amongst the head injuries that reached the hospital were several slight wounds of the scalp in which the bullet had either grazed the scalp or made a gutter in or a tunnel under the skin. Severe wounds of the brain were of course very serious, of four in particular, one was a very large wound of the vertex just to the right of the middle line, over the motor area, there was an extensive linear fracture of the skull, three or more inches in length but no depressed bone, and through this gaping fissure poured a large quantity of brain matter. There were clonic contractions of the left hand followed by complete left hemiplegia. The wound was partially drawn together by sutures leaving plenty of room for drainage, and vigorous healing by granulation soon commenced, the escape of brain matter ceasing about the third day, whilst by the end of a fortnight he was doing very well indeed.

Another similar case died within four hours of admission. A third had a large hole in the centre of the vertex with depressed fracture. He was trephined, the bone removed, and all pressure relieved, but he died in coma two or three days

SURGICAL SURVEY OF THE CASUALTIES IN MESOPOTAMIA

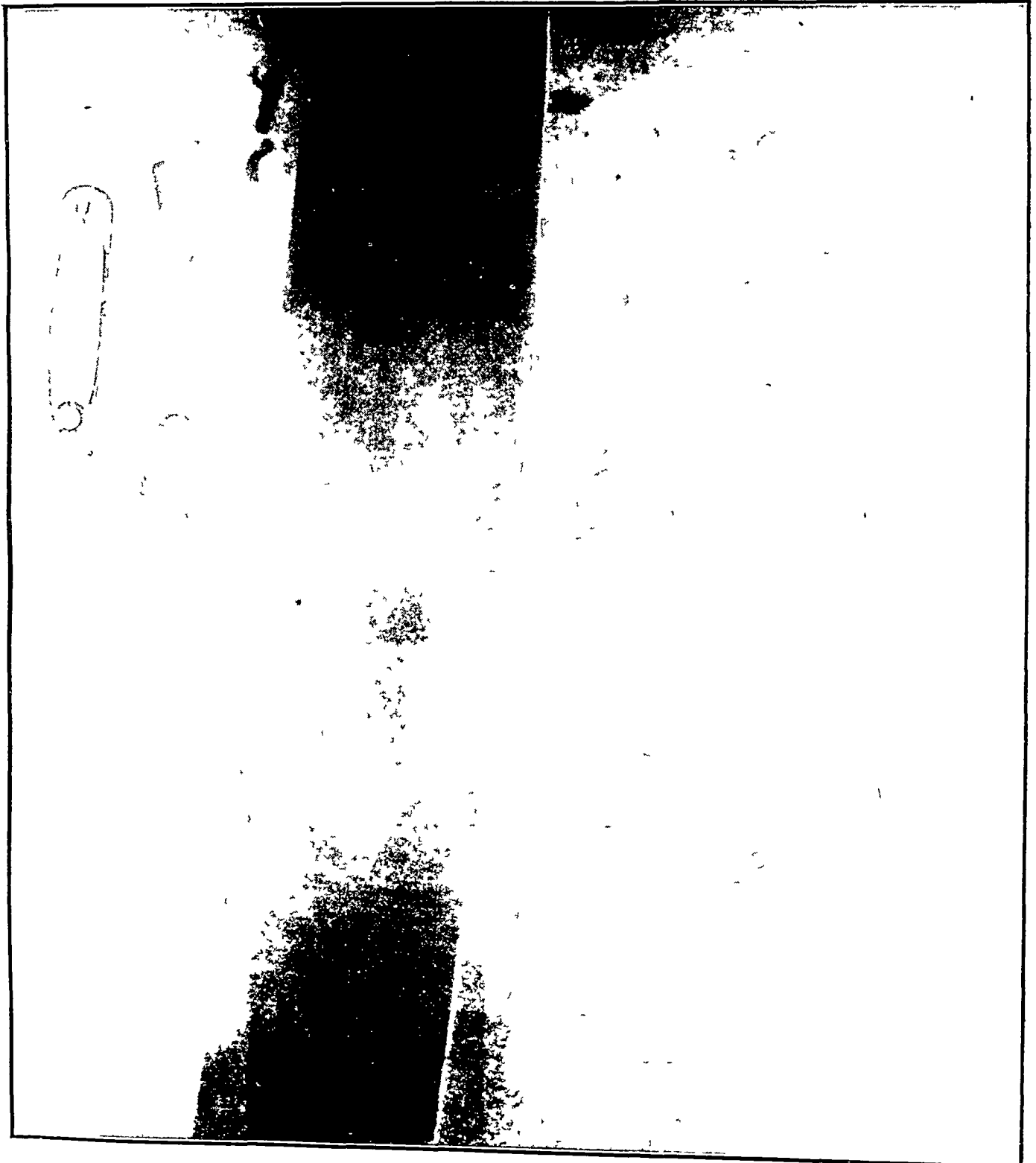
BY CAPTAIN C H BARBER, I.M.S.,

Surgical Specialist to No 9 Indian General Hospital,

AND

CAPTAIN E E DOYLE, I.M.S.,

X-ray Specialist



SKIAGRAM No 1

Showing effect of 'Grand Mauser' bullet, 400 bore, which hit femur and was split into several pieces by the impact, the femur remaining intact

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BY CAPTAIN C H BARBER, I.M.S.,
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AND

CAPTAIN E E DOYLE, I.M.S.,
X ray Specialist



SKIAGRAM NO 2

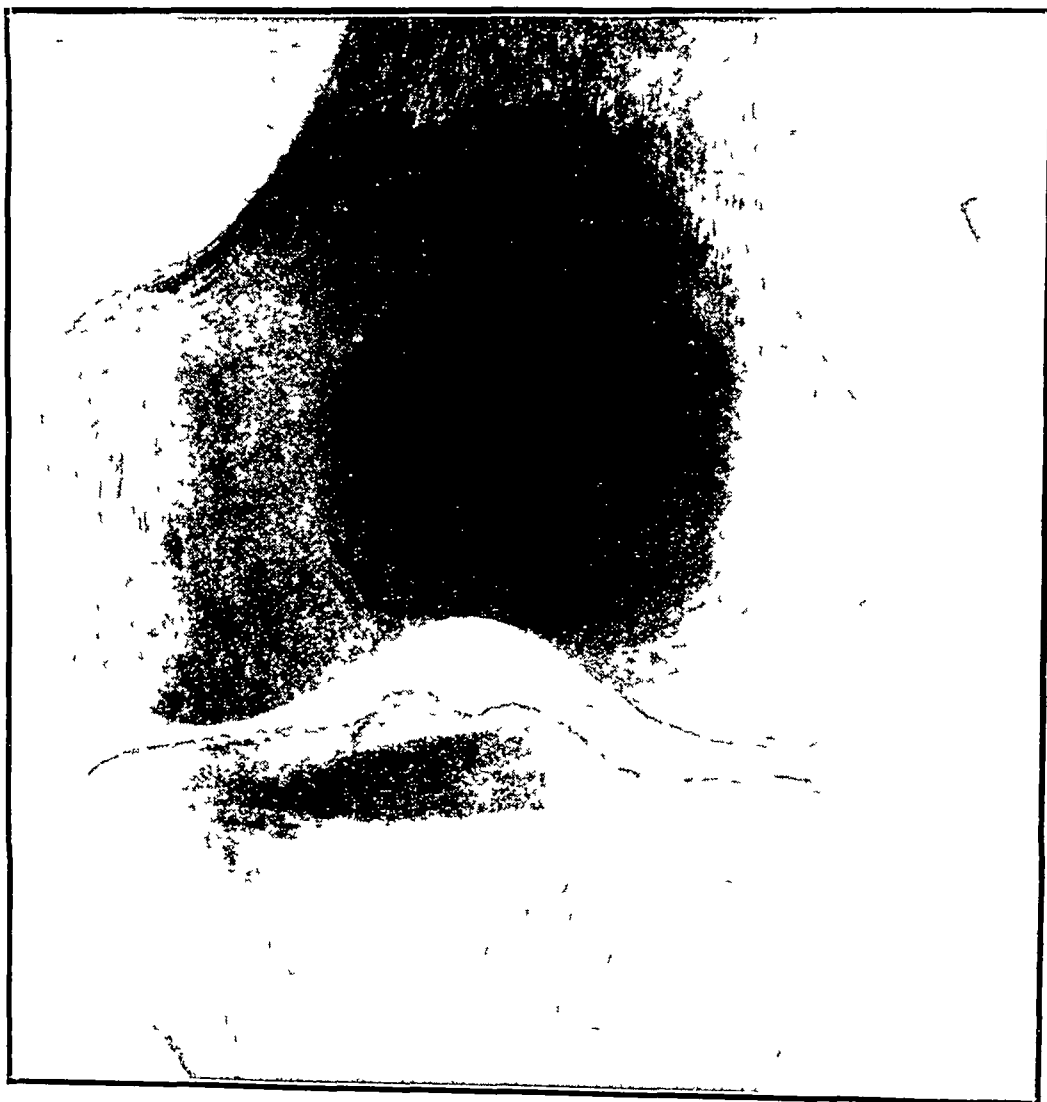
Side to side photograph of knee shewing small high velocity 'Spitze' bullet lying immediately behind joint in Posterior Ligament

SURGICAL SURVEY OF THE CASUALTIES IN MESOPOTAMIA.

BY CAPTAIN C. H. BARBER, I M S,
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AND

CAPTAIN E. E. DOYLE, I M S,
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SKIAGRAM NO 2a

Antero Posterior photograph of knee shewing same bullet as in No 2

SURGICAL SURVEY OF THE CASUALTIES IN MESOPOTAMIA.

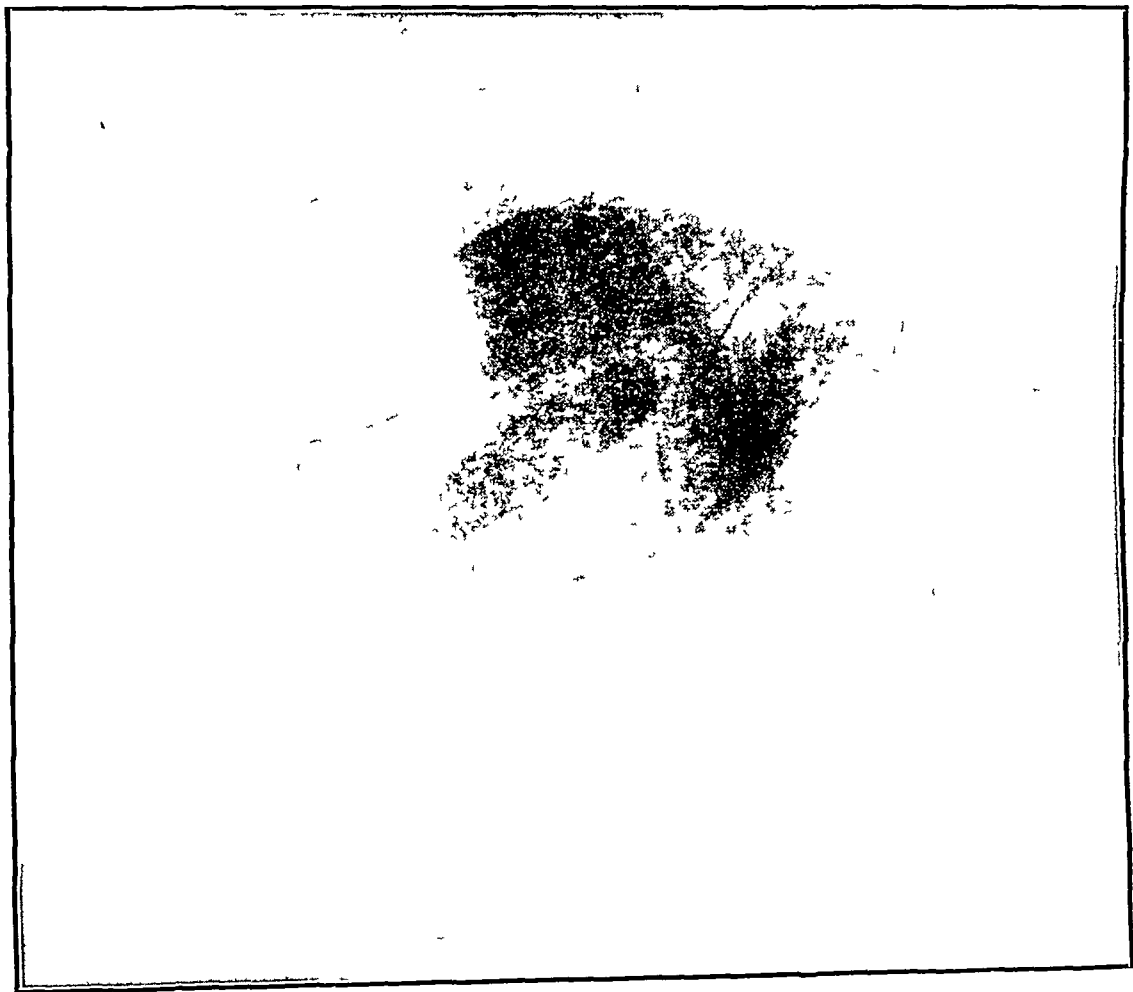
By CAPTAIN C H BARBER, I M S ,

Surgical Specialist to No 9 Indian General Hospital,

AND

CAPTAIN E E DOYLE, I M S ,

X-ray Specialist



SKIAGRAM NO 3

Shewing 'Grand Mauser' bullet embedded in astiagalus This was removed—recovery

SURGICAL SURVEY OF THE CASUALTIES IN MESOPOTAMIA

BY CAPTAIN C H BARBER, I M S ,
Surgical Specialist to No 9 Indian General Hospital,

AND

CAPTAIN E E DOYLE, I M S ,
X-ray Specialist



SKIAGRAM No 4

Wound of right hand, entrance palmar surface shewing compound comminuted fractures of 4th and 5th metacarpals

later with nothing discoverable to account for the fatal termination, save one or two small bits of bullet shewn by the X-rays to be scattered in the brain substance.

In a fourth case the bullet entered the frontal bone high up on the left side, passed through the skull and the neck, fractured the inner end of the right clavicle and formed a localized abscess. This man recovered.

As regards abdominals, several of the straight-forward perforations including some involving the liver and stomach quickly recovered but others, especially when the pelvic viscera were injured, died. Two were opened for drainage, of which one died and one recovered.

In a third, a Turk, in whom the entrance wound was in the left buttock and the exit in the right iliac region of the abdominal wall, a piece of omentum one and a half inches long was protruding from the latter wound. This was withdrawn a little and ligatured off, and a drainage tube inserted pelviswards, but he died some days later, after he left us. I am inclined to think he would have done better if we had left him alone.

There were three or four cases of *paraplegia* following injury to the *spinal cord*. In one case with no exit wound, a skiagram shewed the bullet resting to one side of the cord and so held out some hope of possible relief. A laminectomy was done, and the bullet, which had smashed in the pedicle of the second dorsal vertebra, removed.

For a time there was a decrease in the amount of anaesthesia which gradually receded from the level of the second rib to the navel, but severe bed-sores developed before he left by hospital ship and there seemed no hope of his recovery. This bullet, a misshapen 400 lead, had formed a small abscess around it, according to the custom of its kind.

The majority of the perforating wounds of the chest did well, there was usually a little hæmoptysis for the first few days after which they rapidly improved, but in two cases a large hæmothorax occurred both of which did well after partial aspiration, and in several there were marked surgical emphysema which always disappeared within a few days.

Two cases of traumatic aneurysm have occurred one of which, of the first part of the axillary artery was treated by ligature of the third part of the sub-clavian, resulting in complete recovery of the use and sensation of the arm and disappearance of the aneurysm. The other, a small aneurysmal varix at the commencement of the brachial, is doing well under gentle pressure.

Two or three cases of injury to large nerve trunks have been met with. In one of these, in which the brachial plexus appeared to have been severed an operation disclosed the pressure of

a fractured clavicle to be responsible for most of the trouble, one cord only being broken through.

An interesting case was one in which the only wound was a small one, half an inch below the left eye. After X-ray examination a large Snider bullet was extracted from the right zygomatic fossa.

As regards *treatment* every effort has been made to conserve limbs and tissue as far as possible and amputations have been few. The general treatment of wounds has been cleansing the wound mouth—in the simple penetrating wounds—and its surroundings at once with tincture of iodine, and in the larger wounds thoroughly swabbing out the wound in every direction. We had only a limited supply of iodine, so that carbolic acid was very often used for cleansing the deeper parts of jagged wounds, and I think it is every bit as good. The great value of iodine it seems to me lies in the time it saves in a rush of work in enabling one rapidly to cleanse a wound and its environs, more especially the latter otherwise I think soap, brush, and one in twenty carbolic lotion is a combination still very hard to beat in efficacy. I have not noticed any ill effects of iodine when it has been used on the tissues in our comparatively few cases but I should hesitate to say it has none. The grossly septic cases we did not attempt to swab out, but contented ourselves with establishing free drainage, than which nothing is more important.

In applying dressings in my own cases and in those I have been able to control, the gauze was always rinsed in Perchlouide of Mercury, 20 to 50 or in weak carbolic and squeezed as dry as possible, it is to my mind an absolutely hopeless practice to pack on to a wound you have just rendered aseptic, or hoped to have done so, a piece of dry gauze that has been lying waiting in an open dish for minutes or hours in an atmosphere reeking with septic germs, under the idea that such gauze still retains the sterility it possessed when originally put in its packet. Yet this is very frequently done by men who seem to object to lotions on principle, whatever the conditions under which they are working, although they will use iodine to paint the skin with to any extent.*

Hydrogen peroxide is, I think, a very useful help in the treatment of septic cases.

All bullets that could be felt or were within easy reach were immediately extracted a plan which in the light of the subsequent septic behaviour of the big lead bullets was abundantly justified.

On the whole the wounded have done very well, there has been no case of tetanus amongst the

* I would earnestly direct the attention of those who have to treat wounds in war to Watson Cheyne's address in the *Lancet* of Nov. 21, 1914, which we have just received. His authority on this subject is beyond question.

Indian casualties, though I have heard of one amongst the Arab prisoners, possibly there are but few tetanus bacilli in the soil of the desert where most of the fighting took place, which may account for our immunity from the disease since no serum has been used. Cellulitis has been a rare complication of septic cases and has never been serious.

The skiagraphs were taken with the ordinary Field Service apparatus—Twelve-inch coil, accumulator batteries and heavy anode tube—electrolytic break.

| Skiagraph No | Heavy Anode | 15 Amps | 48 Volts | 2½ Minutes exposure |
|--------------|-------------|---------|----------|---------------------|
| " 2 | " | " | " | 1 " |
| " 2a | " | " | " | 1 " |
| " 3 | " | " | " | 1 " |
| " 4 | " | " | " | 75 Seconds |

THE SERO-DIAGNOSIS OF SYPHILIS

NOTE II

By W D SUTHERLAND, M D,

LIEUT COL, I M S

AND

G C MITRA,

ASST SURGN, I M S

HAVING performed many hundreds of Wassermann tests for syphilitic infection we feel it incumbent on us again to sound a note of warning as to the merits of the test, which *depend entirely on the value of the controls* used.

Adequate control cannot be exercised if only a few drops of the patient's blood are examined. Of this we have time and again received irrefragable proof. For instance—

(i) A was held to have a "positive" W R. We were asked to verify this result, and having taken 5 c c of his blood proceeded to do so. The first thing that was evident was that A's serum was very anti-complementary of itself, *i.e.*, that it gave a false positive reaction. When carefully collated, the controls showed that the *real* reaction was an absolutely negative one.

(ii) B's serum had been held to give a negative W R. On examination of the blood taken by us, it was found that his serum was of itself very hæmolytic for the erythrocytes of the indicator. In other words it gave a false negative reaction. The *real* reaction was a medium positive one.

These are typical cases, and—what is important—they are not at all uncommon. In the last 40 cases that we have examined we have found eight very misleading reactions. Of these there were

5 strongly anti-complementary—falsely "positive"
3 strongly hæmolytic —falsely "negative"

The question naturally arises. How are these misleading reactions rightly to be estimated at their true value?

The means of right estimation are not easy, though simple. They are—

Care and Controls—Care is necessary. It matters much whether accurately measured quantities are added to the contents of the tubes, and whether the residue in a tube be correctly estimated as erythrocytes or their ghosts. Controls are needed, as will appear.

Detailed Protocol of examination for W R of the sera of A, B, and C, suspected syphilitic cases. For this examination we take

- (1) Antigens xxii and xxiii of known value
- (2) Amboceptor No 180 working dose = 002 c c, determined when serum stored
- (3) Complement at time of test working dose = 85 c c of 1/10 dilution of the *pooled* sera of two guinea-pigs
- (4) Indicator a 5% suspension of fresh sheep's erythrocytes in NaCl solution

| Series I | Series II |
|---|--|
| Antigen xxii | Antigen xxiii |
| Tube | Tube |
| 1 Known syphilitic serum No 125 { 56° 30" } | 1 |
| 2 Known syphilitic serum No 156 { 56° 30" } | 2 |
| 3 Known normal serum No 54N { 56° 30" } | 3 |
| 4 Known normal serum No 83N { 56° 30" } | 4 |
| 5 A's serum heated to 56° C for 30 minutes | 5 |
| 6 B's — " — | 6 |
| 7 C's — " — | 7 |
| 8 No serum | 8 Control as to anti-complementary power of antigen in each series |

| Series III | No antigen in this series |
|---|--|
| 1 A's serum Control as to anti-complementary power of A | |
| 2 " " No amboceptor Control as to hæmolytic power | |
| 3 B's serum Control as to anti-complementary power of B | |
| 4 B's serum No amboceptor Control as to hæmolytic power | |
| 5 C's serum Control as to anti-complementary power of C | |
| 6 C's serum No amboceptor Control as to hæmolytic power | |
| 7 No serum + Comp amboceptor with indicator | Control of hæmolytic system's value |
| 8 No serum Comp + indicator only | Control of hæmolytic power of complement at time of test |

9 NaCl suspension of erythrocytes Control of NaCl solution's value at time of test

In each tube, unless otherwise mentioned, the Hæmolytic system is present, *z e*, Comp +amboceptor + indicator For details of the method of adding these we would refer the reader to any work on Complement—deviation

We would lay great stress on the fact that the *keeping* of patient's or stock test sera tends to render these anti-complementary Obviously, therefore, the laboratory worker requires a constantly renewed stock of controls, and this, we have found, is only to be obtained where there is a large and easily-tapped supply

A rumour has reached us to the effect that in certain quarters a "hæmolytic rabbit" is kept, whose blood is taken—a few drops at a time—and supposed to supply the necessary amboceptor

A more futile procedure it is not easy to imagine We would insist on (a) careful preliminary treatment of the rabbits used, and (b) the abstraction of the maximum quantity of their blood at a suitable time after such treatment, with (c) very careful titration of the amboceptor-content of the serum thus obtained, and (d) its storage in the frozen condition as soon as its value has been determined

But all these precautions may easily and irrevocably be rendered null and void unless the complement used is accurately titrated on the day of test, sufficient guinea-pig's serum being taken for this purpose—not a few drops.

We are convinced that thus, and thus only, can the observer attain to accurate estimation of the value of the reactions obtained in the various tubes of the three series, and it is on the accurate estimation of these that the welfare of the patient depends

STUDIES IN MALARIA

By HUGH STOTT, M B,

CAPTAIN, I M S,

Surgeon to His Excellency the Governor of Madras

PART III—Continued

(Continued from page 52 February 1915)

II

SIGNS, SYMPTOMS AND RE-ADMISSIONS

THE signs and symptoms arising in the course of malarial infection are few in number, and yet so varied may be their combination with the many different clinical types of malarial fevers that most perplexing bedside pictures may arise

Close observation of the course of the fever and of the signs and symptoms evinced by the patient will, however, go far to aid the solution of many of the irregular and remittent types of

pyrexia so confusing when first met with A few notes on pernicious and other symptoms collected from the present series will perhaps not be altogether out of place

PERNICIOUS SYMPTOMS

Pernicious symptoms localized to whatever part of the body they may be, apparently depend upon the organ selected by the parasite for sporulation They are therefore most infrequent, if they occur at all, in cases of benign infection, for here sporulation takes place for the most part in the peripheral circulation Local pernicious symptoms in malignant infections are probably due to a combination of a severe acute local toxæmia by the malarial poisons set free at the time of rupture of the red cells together with a deprived state of local nutrition consequent on the blocking of blood vessels by the sporulating parasites In my series there were at least twelve cases (slightly over 1 per cent) shewing well-marked pernicious symptoms

Under a classification of cerebral, algide and hæmoglobinuric forms a short history of these cases may not be without interest

CEREBRAL FORMS

Hyperpyrexial Type.—The patient was an English lady whose initial temperature rose to 106.8, when she commenced to become drowsy and to wander Intra-muscular injections of quinine rapidly proved effective

Comatose Type.—A native in Ootacamund (not one of the present series) who had suffered from fever and an enlarged spleen for some days, was brought into hospital with sudden coma, stertorous breathing, and an imperceptible pulse Several efforts were made without avail to do an intravenous infusion of quinine into the median basilic and external saphenous veins His vessels were, however, too collapsed His blood was scanty, very thick and tar-like Two pints of hot intraperitoneal saline with forty grains of quinine bihydrochloride failed to relieve him and he died without recovering consciousness

Delirious Type.—The best case of this type is recorded elsewhere in this paper Two other well-marked cases and several patients with slight delirium were also recorded. The latter were probably due to general toxæmia rather than to any local effect

Convulsive Type.—A recruit went to parade on 24-2-11 feeling feverish and seedy Shortly afterwards at 11 A.M. he fainted, and whilst unconscious was seized with a bilateral epileptiform convulsion affecting his face and arms On admission his temperature was 101.6 and a second similar fit occurred At 5 P.M., as the fever left him, he sweated severely, consciousness returned during the apyrexia of the 25th On the 26th

may perhaps be obtained by the following calculation

(a) The total present strength of the regiment for 12 months was $680 \times 12 = 8,160$ men

(b) The primary infections amongst this strength were 347 cases

Percentage of (b) to (a) = 4.2% Applying a similar infection rate to the original admissions, we have strength, 347, infection rate, 4.2%, whence approximate number of reinfections 15

The total admissions would thus roughly group themselves in the following proportions—

| | | | | Fresh infections |
|------------------------------|-----|------|---|------------------|
| Primary admissions | 347 | 66% | } | 69% |
| Re-admissions { Reinfections | 15 | 3% | | |
| Relapses | 162 | 31% | | 31% |
| Total admissions | 524 | 100% | | 100% |

RELATIVE SEVERITY OF SUCCESSIVE ADMISSIONS

As regards the relative severity of attacks in the later admissions as compared with those of earlier admissions the following table sets out in summary form deductions from appendix C as to what extent patients of the present series actually suffered

| Detail | Days in hospital per case | Doses of Q per case | Degrees of fever per case |
|--|---------------------------|---------------------|---------------------------|
| Average of first and second admissions | 7.9 | 6.6 | 14.7 |
| Average of 3, 4, 5 and 6 admissions | 7.9 | 5.1 | 14.1 |

It would thus appear that though both the earlier and later admissions actually spent on an average the same number of days in hospital, yet the degree of severity of attack as judged by the number of fever units and the amount of quinine required was less in the case of the first two than in the remaining admissions

III

BLOOD OBSERVATIONS IN MALARIA

After a careful examination of the patient's history and clinical condition, it goes without saying that in any case of tropical fever at the present day, a thorough blood examination is essential. In this chapter are considered a few observations on blood work which such a routine examination has brought to notice

TYPES OF WHITE CELLS

In a consideration of the value of the large mononuclear differential count, the first point to determine is what types of cells should be included under the various generally recognized headings. Authorities differ to a fairly considerable

degree both as to the nomenclature of certain of the white cells and as to the group in which they should be counted. As a general rule it is simple and accurate to follow Rogers' axiom and classify all mononuclear cells larger than an average polymorphonuclear leucocyte as large mononuclear and all such cells of a less dimension as small mononuclears.

Plate 1 shows at a glance in what manner the cells of my own counts were made

Large white cells with kidney-shaped nuclei, known by DaCosta and Daniels as 'transitional' cells, were regarded as typically large mononuclears. Counted with them were those cells of a similar size, occasionally known as large lymphocytes, containing a large faintly-staining irregular, oval, circular or square-shaped nucleus. So also were the so-called 'endothelial' cells, frequently seen quite as large as either of the above but with a small distinct well-stained round or ovoid nucleus.

These three groups of cells included in the large mononuclear count have two features in common, firstly that of size, and secondly that of a plentiful supply of non-granular protoplasm which gives rise to another name for these mononuclear cells, *viz*, hyaline cells.

PROPORTION OF LARGE MONONUCLEAR IN CASES OF ACUTE MALARIA

Table I sets out as a frequency distribution the proportion of large mononuclears amongst the 163 differential counts of malarial blood of which I have records. The counts are themselves detailed at length in Appendix A, the actual average count per film for the series works out at—

| | |
|-------------------------|-------------|
| Polymorphonuclear cells | 54 per cent |
| Large mononuclears | 21 " |
| Small mononuclears | 14 " |
| Eosinophiles | 1 " |

From a perusal of the table the proportion will be noticed to be slightly higher (21.6) when the patient's temperature was normal than when pyrexia was present.

Only 12 per cent of the films had mononuclear percentages of 10 and under, 42 per cent of the films gave readings between 11 and 20, 32 per cent between 21 and 30, 11 per cent between 31 and 40, whilst the remaining 3 per cent were above this last figure.

PROPORTION OF LARGE MONONUCLEARS IN FILMS FROM HEALTHY NATIVES

To form some appreciation of the normal proportion of the large mononuclears amongst natives Table II gives the distribution of these cells in 25 films from healthy adult Indian males who were as nearly as possible of the same race and individual types as those in the above series. They had certainly no active disease on them when the films were taken, nor did they shew any such

STUDIES IN MALARIA.

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Surgeon to His Excellency the Governor of Madras

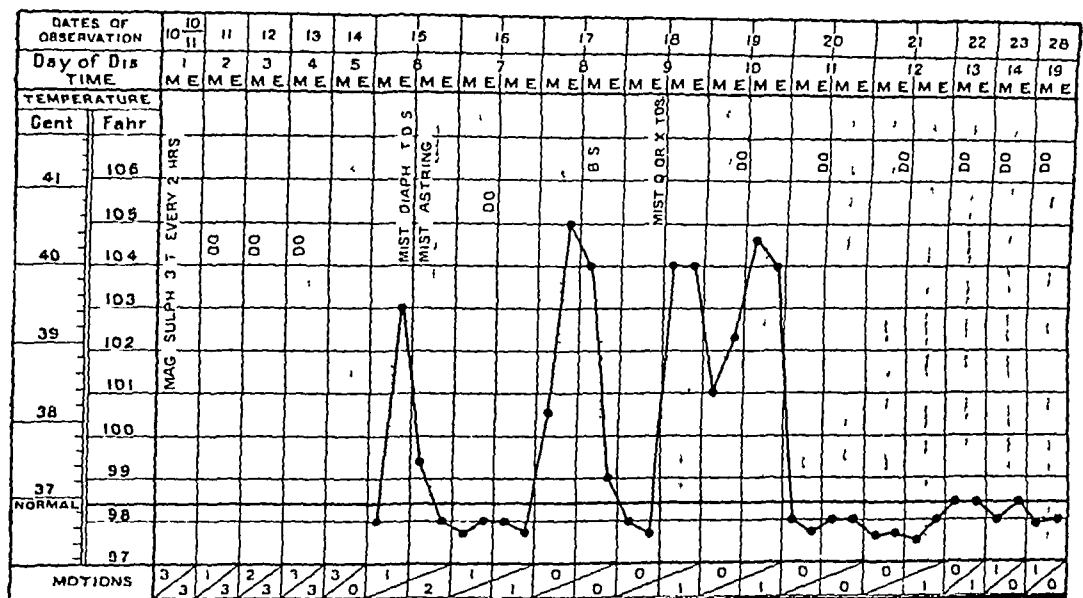
PLATE I TYPES OF WHITE CELLS IN THE BLOOD



1, 2, 3, LARGE MONONUCLEARS—1, with kidney-shaped nucleus 2, 'Large lymphocyte' 3, 'Endothelial Cell'
 4 5, SMALL MONONUCLEARS—with 6, Intermediate form
 7 8 9, POLY MORPHONUCLEAR CELLS—of which 9, with 1, is sometimes known as 'Transitional Cells'
 10, 11, 12, GRANULAR CELLS—10, Eosinophile 11, Mast (basophile) Cell, stained with Jenner 12, Myelocyte with
 neutrophile, eosinophile or basophile granules

STUDIES IN MALARIA.

By CAPTAIN HUGH STOTT, M.B., I.M.S.,
Surgeon to His Excellency the Governor of Madras.



An attack of B T infection, anticipating to produce quotidian fever, and developing after an attack of dysentery Sep G No 2988, 91st P Age 18 Service 3 months

TABLE I

Setting out the Frequency Distribution of large mononuclears in differential blood counts from patients in Hospital with Malarial Fever

| Percentage of Large Mononuclears | NUMBER OF FILMS EXAMINED DURING | | | | | | Totals | Proportion of films to L M % groups |
|----------------------------------|---------------------------------|---------|-------|-------|-------|-------|--------|-------------------------------------|
| | Apyrexia | Pyrexia | | | | | | |
| | -100°F | 100°— | 101°— | 102°— | 103°— | 104°— | | |
| 1 per cent | 1 | | | | | | 1 | 19 (12 %) |
| 4 " | 1 | | | | | | 1 | |
| 5 " | 2 | | | | | | 2 | |
| 6 " | 3 | | | | | | 3 | |
| 7 " | 1 | | 1 | 1 | 1 | | 4 | |
| 8 " | 1 | | 1 | | 1 | | 3 | |
| 9 " | | | | | | 1 | 1 | |
| 10 " | 2 | | 2 | | | | 4 | |
| 11 " | 5 | 1 | 1 | | 1 | | 8 | |
| 12 " | 5 | | 2 | 1 | | | 8 | |
| 13 " | | 1 | 1 | 4 | | | 6 | |
| 14 " | 5 | | | 2 | | | 7 | |
| 15 " | 2 | | 3 | 1 | | | 6 | |
| 16 " | 4 | | | | 1 | | 5 | |
| 17 " | 5 | | | | 1 | | 6 | |
| 18 " | 4 | | | | | | 4 | |
| 19 " | 5 | | | | 1 | | 6 | |
| 20 " | 8 | | 2 | 1 | | | 11 | |
| 21 " | 6 | | 1 | 1 | | | 8 | |
| 22 " | 2 | 1 | 1 | 1 | | | 5 | |
| 23 " | 1 | | | | | 1 | 3 | |
| 24 " | 6 | | | | | 1 | 7 | |
| 25 " | 2 | 1 | | | | | 3 | |
| 26 " | 5 | | 2 | 1 | | 2 | 10 | |
| 27 " | 2 | | | | 1 | | 3 | |
| 28 " | 3 | | | 1 | | | 4 | |
| 29 " | 4 | | | 2 | | 1 | 7 | |
| 30 " | 2 | | | 1 | | | 3 | |
| 31 " | 3 | | | | | | 3 | |
| 32 " | 1 | | | | 1 | | 2 | |
| 33 " | 2 | | | 1 | | | 3 | |
| 34 " | 2 | | | | | | 2 | |
| 35 " | 1 | | 1 | | | | 2 | |
| 37 " | 2 | | | 1 | | | 3 | |
| 38 " | 1 | | 1 | | | | 2 | |
| 39 " | 1 | | | | | | 1 | |
| 44 " | 1 | | 1 | | | | 1 | |
| 46 " | | | | | | | 1 | |
| 47 " | 1 | | | | | | 1 | |
| 50 " | 1 | | | | | | 1 | |
| 51 " | 1 | | | | | | 1 | |
| 52 " | 1 | | | | | | 1 | |
| Total films | 105 | 4 | 20 | 19 | 9 | 6 | 163 | |
| | | | | 58 | | | | |
| Total percentages | 2,274 | | | 1,137 | | | 3,411 | 163 (100 %) |
| Average M % per film | 21.6 | | | 19.6 | | | 20.9 | |

The average count of these cases was thus 20.9 % of large mononuclears per film, the polymorphonuclears averaging 64.1 %, the small mononuclears 14 % and the eosinophiles 1 %

sign of chronic malaria as anæmia or splenic enlargement

TABLE II

| % L Ms | 5% | 6% | 7% | 8% | 9% | 10% | 12% | 14% | 15% | 16% |
|---------------------|-----|----|----|----|----|-----|-----|-----|-----|-----|
| No of films | 2 | 2 | 3 | 2 | 3 | 4 | 5 | 1 | 1 | 2 |
| Ditto { Under } 15% | 92% | | | | | | | | 8% | |
| Ditto { Over } 15% | | | | | | | | | | |

Table II, setting out the frequency distribution of large mononuclears in differential blood counts from 25 healthy natives

The actual counts are set out in full in Appendix B The average differential count works out at—

| | |
|-------------------------|-------------|
| Polymorphonuclear cells | 70 per cent |
| Large mononuclears | 10 " |
| Small mononuclears | 16 " |
| Eosinophiles | 4 " |

VARIATIONS IN COUNTS OF THE SAME BLOOD RETURNED BY DIFFERENT COMPETENT OBSERVERS

Owing to certain differences in the terminology and classification adopted by different workers, there must be of necessity a tendency to some variation in the differential counts they would furnish from the same blood smear.

This tendency to variation will be still further increased by the factor of the personal equation of the observer and by the error introduced in that process of random sampling to which the film is subjected. The question as to what degree this variation may exist may be to some extent estimated by a study of Tables III and IV.

The former of these details the differential counts returned by six competent observers on

Table IV, giving in detail the differential counts returned by six competent observers on smears taken at the same time from two consecutive drops of malarial blood.

PRACTICAL VALUE OF A LARGE MONONUCLEAR COUNT

Tables I and II above shew that over a certain series of cases the average large mononuclear count in acute malaria was 21% whilst that for a healthy adult Indian was 10%. Moreover of the acute malaria cases only 12% gave percentage counts of 10 and under, and 33% of 15 and under, whilst amongst healthy adult Indians 64% furnished percentage counts of 10 and under and 92% counts of 15 and under. From these figures it may be inferred that over a series of

TABLE III

| COUNTS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|------------------------------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|------------|----------|----------|----------|----------|
| Source of differential Count | Provincial Lab | Ditto | Divisional Lab | Ditto | Brigade Lab I. | Ditto | Brigade Lab II | Ditto | Individual | Ditto | Ditto | Totals | Mean |
| | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent |
| Poly cells | 78 | 77 | 75 | 70 | 50 | 66 | 69 | 66 | 77 | 76 | 77 | 781 | 71 |
| Large Monos | 12 | 13 | 13 | 14 | 14 | 10 | 15 | 23 | 12 | 11 | 11 | 118 | 14 |
| Intermediates | 1 | 1 | 0 | 0 | 3 | 3 | 0 | 0 | 2 | 3 | 2 | 15 | 1 |
| Small Monos | 9 | 9 | 12 | 14 | 25 | 17 | 16 | 11 | 8 | 10 | 9 | 140 | 13 |
| Eosinophiles | 0 | 0 | 0 | 2 | 8 | 4 | 0 | 0 | 1 | 0 | 1 | 16 | 1 |
| TOTALS | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 1,100 | 100 |

two films of my own (non-malarial) blood. The films were all taken from one and the same drop of blood, but were sent out at one week's interval to avoid subconscious bias.

Table III, giving in detail the differential counts returned by six competent observers on smears taken at the same time from the same drop of non-malarial blood.

Two counts (Nos 5 and 8) or 18% shewed such decided variation from the normal as to be misleading.

The latter of these two tables (IV) sets out the differential counts returned by different competent observers of the same blood smear from a patient with an acute outbreak of malignant tertian malaria in the course of an infection of some months standing. The films were all taken from two successive drops of the patient's blood

cases a definite increase in the proportion of large mononuclears is a point of importance in the diagnosis of malarial infection. More especially is this the case when by the differential count other conditions presenting a different type of blood picture can be thereby eliminated.

The differential count however deals with relative and not with absolute diagnosis. Taking for example 16 per cent of large mononuclears as a fairly sure indication of malarial infection and excluding other conditions in which these cells may be relatively increased it appears that a probable error exists to the extent of 33 per cent of malarial cases which will not if judged by this standard be considered as due to malarial infection whilst smears from 8 per cent of healthy adults will be considered malarious in nature. The greater part of this discrepancy is

APPENDIX A

| Serial Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | |
|--|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|---------|-----|-----|-----|-----|
| Temperature Polys L Monos S Monos Eosinophiles | 101° | 101 | 101 | 103 | 102 | 105 | N | 102 | 100 | 99 | N | N | 101 | 101 | 103 | 102 | 103 | 102 | N | N | N | N | N | N | N | N | N | N | |
| | 15 | 12 | 44 | 44 | 37 | 65 | 63 | 57 | 65 | 70 | 42 | 73 | 66 | 70 | 68 | 80 | 65 | 56 | 84 | 42 | 41 | 51 | 52 | 54 | 56 | 58 | 59 | | |
| | 35 | 46 | 38 | 32 | 21 | 24 | 11 | 33 | 22 | 17 | 44 | 21 | 26 | 20 | 16 | 13 | 8 | 22 | 11 | 47 | 52 | 30 | 28 | 30 | 33 | 26 | 37 | | |
| | 16 | 35 | 18 | 20 | 34 | 11 | 25 | 10 | 12 | 12 | 13 | 5 | 8 | 7 | 15 | 3 | 27 | 19 | 5 | 9 | 7 | 16 | 18 | 14 | 12 | 8 | 10 | | |
| Serial Number | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | |
| | Temperature Polys L Monos S Monos Eosinophiles | N | N | N | N | N | N | N | N | N | N | N | 100 | 00 | N | N | 100 | 100 | 101 | 101 | 102 | 102 | 102 | 102 | 102 | 103 | 104 | 103 | |
| | | 59 | 57 | 58 | 63 | 62 | 74 | 56 | 59 | 62 | 40 | 42 | 77 | 18 | 42 | 72 | 50 | 85 | 63 | 74 | 72 | 47 | 76 | 70 | 79 | 76 | 83 | 71 | |
| | | 32 | 34 | 31 | 26 | 26 | 17 | 29 | 24 | 24 | 51 | 50 | 21 | 28 | 29 | 15 | 37 | 9 | 16 | 12 | 11 | 16 | 1 | 14 | 15 | 11 | 7 | 12 | |
| 9 | | 9 | 11 | 11 | 1 | 9 | 1 | 1 | 14 | 2 | 3 | 2 | 24 | 29 | 13 | 13 | 6 | 19 | 13 | 17 | 37 | 23 | 16 | 6 | 13 | 10 | 17 | | |
| Serial Number | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | |
| | Temperature Polys L Monos S Monos Eosinophiles | N | N | N | N | 103 | 104 | N | N | N | 101 | 102 | N | 102 | 102 | N | 103 | 99 | 104 | 104 | N | 104 | N | N | 101 | N | 100 | 102 | |
| | | 51 | 67 | 58 | 85 | 85 | 64 | 75 | 45 | 12 | 76 | 73 | 85 | 64 | 53 | 36 | 62 | 82 | 30 | 51 | 60 | 57 | 51 | 62 | 62 | 53 | 56 | 56 | |
| | | 8 | 13 | 29 | 7 | 7 | 25 | 21 | 31 | 19 | 15 | 15 | 7 | 13 | 27 | 20 | 20 | 11 | 16 | 14 | 25 | 15 | 37 | 34 | 19 | 12 | 29 | 39 | |
| 41 | | 20 | 13 | 7 | 8 | 11 | 4 | 21 | 29 | 9 | 1 | 8 | 23 | 15 | 14 | 18 | 7 | 54 | 35 | 15 | 24 | 12 | 14 | 19 | 6 | 18 | 5 | | |
| Serial Number | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | |
| | Temperature Polys L Monos S Monos Eosinophiles | 102 | 102 | 102 | 103 | 101 | 100 | 100 | N | 101 | 102 | N | 102 | 101 | N | 100 | N | 101 | 101 | 101 | 101 | 105 | 105 | 102 | 100 | 101 | N | 102 | 102 |
| | | 87 | 57 | 29 | 61 | 61 | 61 | 60 | 52 | 50 | 78 | 84 | 48 | 63 | 60 | 76 | 73 | 82 | 74 | 62 | 85 | 69 | 74 | 50 | 78 | 61 | 56 | 56 | |
| | | 6 | 10 | 4 | 20 | 17 | 25 | 20 | 38 | 20 | 10 | 13 | 19 | 29 | 26 | 12 | 11 | 13 | 12 | 10 | 11 | 10 | 12 | 11 | 13 | 23 | 14 | 35 | |
| 6 | | 32 | 67 | 16 | 20 | 12 | 20 | 8 | 60 | 12 | 13 | 33 | 8 | 14 | 12 | 13 | 5 | 11 | 38 | 1 | 8 | 14 | 39 | 1 | 16 | 30 | 9 | | |
| Serial Number | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | |
| | Temperature Polys L Monos S Monos Eosinophiles | 103 | 103 | 102 | N | N | 103 | 103 | 102 | N | 102 | N | 102 | 101 | 101 | N | N | N | 100 | N | N | N | N | N | N | N | N | N | N |
| | | 73 | 73 | 81 | 62 | 56 | 88 | 82 | 86 | 78 | 74 | 33 | 89 | 71 | 64 | 72 | 57 | 61 | 69 | 61 | 162 | 64 | 66 | 69 | 68 | 63 | 60 | 64 | |
| | | 12 | 15 | 16 | 28 | 26 | 5 | 14 | 6 | 14 | 8 | 28 | 5 | 11 | 14 | 12 | 31 | 21 | 24 | 18 | 20 | 20 | 21 | 22 | 24 | 27 | 29 | 26 | |
| 15 | | 12 | 3 | 10 | 18 | 7 | 4 | 8 | 8 | 18 | 39 | 6 | 17 | 22 | 16 | 12 | 25 | 6 | 7 | 8 | 6 | 7 | 7 | 7 | 13 | 7 | 6 | | |
| Serial Number | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | Totals | Average | | | | |
| | Temperature Polys L Monos S Monos Eosinophiles | N | N | N | N. | N | N | 105 | N | 102 | N | 101 | N | N | N | 102 | 102 | N | N | N | N | N | N | N | 10,283 | 64% | | | |
| | | 67 | 65 | 62 | 58 | 56 | 62 | 60 | 63 | 62 | 60 | 68 | 63 | 63 | 66 | 51 | 53 | 70 | 68 | N. | N | N | N | N | 3,401 | 31% | | | |
| | | 22 | 18 | 21 | 23 | 19 | 20 | 23 | 26 | 29 | 25 | 24 | 26 | 19 | 24 | 26 | 30 | 8 | 21 | 77 | 71 | 70 | 76 | 74 | 19,283 | 21% | | | |
| 9 | | 13 | 14 | 17 | 25 | 18 | 14 | 10 | 9 | 14 | 8 | 11 | 17 | 10 | 21 | 15 | 12 | 11 | 6 | 9 | 10 | 18 | 19 | 138 | 14% | | | | |

APPENDIX B

| Serial Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Poly Cells % | 85 | 67 | 78 | 73 | 67 | 78 | 72 | 58 | 67 | 62 | 57 | 65 | 68 | 76 |
| L Monos. % | 5 | 14 | 7 | 7 | 12 | 8 | 12 | 15 | 15 | 12 | 12 | 10 | 9 | 6 |
| S Monos % | 5 | 17 | 13 | 16 | 17 | 11 | 10 | 21 | 11 | 24 | 27 | 19 | 19 | 12 |
| Eosinos % | 5 | 4 | 2 | 4 | 4 | 3 | 6 | 6 | 6 | 2 | 4 | 6 | 4 | 6 |
| TOTALS | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

| Serial Number | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Totals | Average |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|---------|
| Poly Cells % | 61 | 70 | 72 | 76 | 76 | 58 | 64 | 83 | 72 | 69 | 68 | 1,742 | 70 % |
| L Monos % | 9 | 16 | 7 | 5 | 8 | 10 | 10 | 6 | 9 | 12 | 10 | 247 | 10 % |
| S Monos % | 19 | 10 | 14 | 14 | 8 | 31 | 22 | 10 | 19 | 16 | 18 | 394 | 16 % |
| Eosinos % | 11 | 4 | 7 | 3 | 8 | 1 | 4 | 1 | 9 | 3 | 4 | 117 | 4 % |
| TOTALS | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 2,500 | 100 % |

Table shewing actual differential counts from 25 healthy adult Indian males

APPENDIX C

| Serial No | Detail | 1st Adms | 2nd | 3rd | 1th | 5th and 9th | TOTALS |
|-----------|--|--------------------------------|-------|--------------------------------|------|-------------|--------|
| 1 | Number of cases which took quinine | 284 | 113 | 39 | 13 | 4 | 453 |
| 2 | Doses of quinine taken by 1 | 1,781 | 869 | 185 | 91 | 10 | 2,936 |
| 3 | Degrees of fever by 1 | 4,194 | 1,675 | 545 | 138 | 40 | 6,582 |
| 4 | Doses of quinine per case | 6.2 | 7.6 | 4.7 | 7.0 | 2.5 | 6.4 |
| 5 | Average doses for 1—2 and 3—6 Adms | 2,650 by 397 adms 6.6 | | 1,155 doses by 56 adms 5.1 | | | 14.5 |
| 6 | Degrees of fever per case | 14.7 | 14.8 | 13.9 | 10.6 | 10.0 | |
| 7 | Average degrees 1—2 and 3—6 Admissions | 5,869 degrees by 397 14.7 | | 724 degrees by 56 adms 14.1 | | | 5.23 |
| 8 | Total Admissions | 347 | 121 | 40 | 12 | 4 | |
| 9 | Days spent in Hospital by 8 | 2,670 | 1,043 | 318 | 103 | 22 | 4,156 |
| 10 | Days per case | 7.6 | 8.6 | 7.7 | 8.5 | 5.5 | |
| 11 | Average days 1—2 and 3—6 Admissions | 3,713 days by 467 cases 7.9 | | 443 days by 56 cases 7.9 | | | |

Table shewing the doses of quinine degrees of fever and days spent in hospital by total and average admissions from the 91st Punjabis for their primary and each successive re admission

TABLE IV

| COUNTS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|------------------------------|-------------------|----------|------------------|----------|-----------------|--------------|----------|-----------|-----------|--------------------|--------|-------|
| Source of differential Count | Pasteur Institute | Ditto | Provincial Lab I | Ditto II | Divisional Lab. | Individual I | Ditto II | Ditto III | Ditto III | Provincial Lab III | Totals | Mean. |
| | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | Per cent | | |
| Poly Cells | 75 | 78 | 54 | 71 | 63 | 59 | 55 | 54 | 56 | 68 | 633 | 63% |
| Large Monos | 9 | 8 | 16 | 8 | 19 | 12 | 9 | 19 | 16 | 18 | 142 | 14% |
| Small Monos | 11 | 12 | 9 | 13 | 9 | 25 | 24 | 25 | 25 | 11 | 164 | 16% |
| Eosinophiles | 5 | 2 | 13 | 8 | 9 | 4 | 12 | 2 | 3 | 3 | 61 | 6% |
| TOTALS | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 1,000 | 100% |

probably due to that error introduced by random sampling which is inseparable from all blood work, for the personal equation of the observer throughout was constant

A far more telling criticism of the value of differential counts as ordinarily used in diagnosis is introduced by this latter factor, which depends on individual methods of classification and counting and also upon the skill, experience and attention of the observer. Even when the competency of the blood counter is beyond reproach it would appear from Table III that there is a probable error of 18 per cent in the readings returned from identical films—whilst Table IV brings out even greater variation

The large mononuclear count with other differentials can, then, only be of practical value in the diagnosis of disease when the blood counter and his personal equation are known

Twice during the period of these studies the differential count proved of marked service in diagnosis. In either case a marked polymorphonuclear leucocytosis turned the diagnosis away from malaria. Both were cases shewing marked polymorphonuclear leucocytosis which turned the diagnosis in either case away from malaria

The first was that of an officer a subject of chronic malaria. He was convinced that the rigor attack he had was but a reminder of his old friend. A marked polynuclear increase was the first indication that his shivering fit marked the onset of an acute septicæmia following an insignificant scratch on the finger whilst the patient was playing billiards on the previous evening. The second case was one in which the diagnosis lay between a malignant remittent malaria and

a somewhat atypical attack of lobar pneumonia with a remarkably slow respiration rate. A relative polymorphonuclear increase to some 95 per cent with a marked total leucocytosis pointed to the latter diagnosis being the more probable, and this indeed was confirmed by the appearance of signs of lung consolidation on the third day.

PRACTICAL VALUE OF THE BLACK MALARIAL PIGMENT.

With regard to the utility of the black pigment of malaria as a means of diagnosis, it is of course absolutely pathognomonic when the observer is convinced that the deposit he is looking at is not dirt, dust or other pigment, but the typical hæmozoön derived during the evolution of the malarial parasite's life-history. In many cases this provision must considerably narrow down the utility of the test for the diagnosis of malaria by the average worker

Only once was a case of the series diagnosed solely by this means. In this case spleen puncture provided films containing numerous cells with large mononuclear nuclei. In their protoplasm granular black pigment could scarcely be missed in unstained specimens and was also very apparent in stained films

APPENDICES TO PART III.

- A—Table setting out the actual full differential counts of 163 patients with acute malarial disease
- B—Table setting out the actual full differential counts of 25 healthy adult Indian males.

(To be continued)

THE ACTION OF QUININE AND ARSENICAL PREPARATIONS IN KALA AZAR

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KALA-AZAR is a protozoal infection. Some of the biological facts connected with the life-cycle of protozoa appears to have bearing on the treatment of the disease.

Variation of vital resistance of protozoal cultures of the same species

G N Calkins and C C Leib in an article on the subject of "Studies on the Life-History of Protozoa" published in *Archiv fur Entom* (1902) established that *paramecium caudatum*, when fed upon the same hay-infusion diet, passes through more or less regular cycles of vigour and depression, the former indicated by a higher rate of division, the latter by a constantly decreasing rate until the line ultimately dies from what Naupas (in *Archiv d Zoology Experim et General* 1889) described as senile degeneration. Hertwig (*Abh d k bayr Akad d wiss Wochen H K I XIX*) has shown that in nature the period of depression may be ended or avoided altogether by the union of two individuals in conjugation.

Variation of the resistance of protozoa to the action of drugs

The subject has been investigated by Prowazek and the result of his researches published in *Archiv fur Protistenkunde* XXVIII, p 221.

He tried the effects of drugs like atrophine, morphine, on cultures of colpodium, all of which have been obtained as successive generations from a single colpodium, so that all of these were descendants of a single individual. In such cultures as a rule, conjugation does not take place. In this way, the effect of conjugation on the vital resistance power of protozoa is avoided. By the examination of the different cultures of these colpodium, the great variation in their power of resistance to drugs was noticed.

In the course of our investigation on the cinchona derivatives, the series of experiments which I carried on as the Assistant to Major A C MacGilchrist, by placing cultures of protozoa in solutions of different strength of the salts of cinchona alkaloids, and noting the time of their death, which indicated their vital resistance power, we noticed not only great variation in the resistance of the different cultures of protozoa of the same species, but also noticed marked variation of the vital resistance power of the same culture from time to time. This will be seen from some of our results which have been published in the July number of the *Indian Journal of the Medical Research*, page 327.

This variation of the vital resistance power of protozoa has not yet been clearly understood or

accounted for. Some authorities, however, think that this is to a great extent dependant on the amount of food-supply present in the culture fluid of the protozoa.

How the vital resistance of protozoa is affected, when these are immersed in dilute toxic fluid

In the course of experiments carried on, in connexion with our enquiry on the cinchona derivatives we carried on an interesting series of experiments on the effects of continuous immersion of protozoa in very dilute toxic solutions of quinine cinchonine, etc, as in 1 in 100,000, which do not kill off the cultures of protozoa directly. We found this to produce gradual diminution in the resistance power of the cultures of protozoa. The above can be best made clear by an illustration.

It is found that a particular culture of *paramecium aurelium* is killed in an average time of 20 minutes, with a solution of quinine sulphate 1 in 25,000. It is also found that the culture of protozoa will live for some days in a solution of quinine sulphate 1 in 100,000. But it is found that after about 24 hours, the time for death for the organism which has been kept in 1 in 100,000 solution begins to diminish. After about 48 hours, the time for death of protozoa with the same 1 in 25,000 quinine sulphate solution diminishes to 6 or 7 minutes, and remains about at that level till all protozoa die away, which generally happens within about four or five days. The culture of protozoa in 1 in 100,000 quinine sulphate solution dies off sooner than the culture of protozoa which has not been kept continuously immersed in quinine solution like the above.

The line of treatment suggested by the above experiment

The above suggests a mode of treatment for protozoal diseases, in which a suitable remedy, viz, one which is highly inimical to the protozoal parasite, but comparatively harmless to its host has yet to be found.

In these cases we cannot administer the antiparasitic agent in sufficient doses so as to be inimical to the parasite, as it may be injurious to the host. In these cases we may try if possible to diminish the vital resistance of protozoal parasites, by keeping them immersed as it were in a very dilute solution of a drug which is toxic to the parasites. But as we have shown before, that the vital resistance power of protozoa of the same species not only varies in different cultures, but this varies markedly in the same culture from time to time. So we should expect the effect of treatment in accordance with this method to be uncertain. By trying to analyze the principal methods of treatment which are coming to the front in the treatment of kala-azar, we shall try to show how the clinicians are following unconsciously a biological

truth, in their method of treatment without understanding its significance clearly

Quinine in the treatment of Kala-azar

Regarding the use of this drug in kala-azar, the views of Sir L. Rogers are interesting, and I quote below his own words from the *Lancet*, 1907, Vol I, for March, pages 570 and 571

"In my report I strongly urged that quinine did have a definite effect in controlling the severity of the fever, even when it did not stop it altogether, and recommend that it should be given in large doses and persisted with for months together if necessary. Further experience in Calcutta has only served to confirm me in that opinion, for I have repeatedly seen a high remittent fever reduced to a comparatively harmless low intermittent one by increasing the quantity of quinine given. 60 and in some cases 90 grains a day having been taken for considerable periods, with nothing but good effects beyond being sometimes distressing to the patients. Once the temperature has fallen to the low intermittent type, it can often be kept down to that point for a long time by small doses one of 20 grains in the morning, being commonly effectual. That this line of treatment has given far better results than those admitted by unbelievers in it will be clear from the fact that after the publication of my report, Mr Price systematically tried persevering quinine treatment, and when he worked out for me the results of several years' experience, he found that the mortality of 500 consecutive cases was but 75 per cent, the remaining 25 per cent being permanently recovered, against 4 per cent of the earlier series quoted above."

From the above, it will be seen that Sir L. Rogers claims only a moderate success from this method of treatment, and acknowledges this to be a failure in 75% of the cases. So the following remarks in the *System of Medicine* by Allbutt and Rolleston Vol II, Part II page 240, cannot be taken as a contradiction of Sir L. Rogers.

"Major Rogers considers that, if given early in large enough doses, and before the leucopenia has become extreme, it may be good chiefly by controlling the fever, and in lengthening the periods of apyrexia. On the other hand, it has been pushed *ad nauseum* by many who now regard it as absolutely valueless."

It appears that in kala-azar instead of administering enormous doses of quinine orally, we can get good results by the administration of smaller doses of quinine given by method of injection. Dr E. Muir has given extended trial to the method of injections of quinine in kala-azar and records in *Indian Medical Gazette* 1911, p 58, favourable experiences with this method of treatment. The method followed by him is to inject two to six

grains of quinine sulphate in acid solution intramuscularly, after previously inserting 5 minims of a 2 per cent solution of cocaine through the same needle to prevent subsequent pain. According to him if cases are seen within the first six months and this treatment is persisted with, it seldom fails.

Major A. C. MacGilchrist, M.A., M.D., I.M.S., has compared the method of administration of quinine by injection hypodermically, with the method of oral administration, and the following are some of the results of his investigations —

"The behaviour of quinine solutions when mixed with blood-serum suggest the possibility of very dilute solutions of quinine (1 in 150), but the unlikelihood of concentrated solutions such as ordinary quinine hypodermic injections, being readily absorbed it suggests the probability that most of the quinine in hypodermic injections is thrown out of solution at the point of injection, is combined with albumen in an oxidised but unstable form, and is gradually liberated from this combination."

The results obtained by Megaw as described in the *Indian Medical Gazette* 1907, p 12, shows that absorption is slower from the subcutaneous tissues than from the gastro-intestinal mucous membrane.

The injection of quinine does not promote leucocytosis, on the other hand, according to some authorities leucocytes are diminished after its injection. According to Marshall, 3 grammes of quinine sulphate is capable of reducing the number of leucocytes by 7 per cent. Sollman is also of the same opinion (*Vide the Scientific Memoir on Quinine* by Major A. C. MacGilchrist, p 37).

The beneficial effects of quinine injections in kala-azar can be best explained as due to the fact that the parasites within the body are exposed, as it were, to the continued action of very dilute quinine solution, as small quantities of quinine are constantly absorbed from the seat of injection and the vitality of the parasites is depressed, as happens in the case when parasites are kept immersed in a very dilute quinine constantly for some time. By oral administration, we do not expect the presence of such a steady and continuous solution of quinine in the blood, as we would expect by the injection method.

The effects of arsenical preparations in Kala-azar

At present, systematic search is being made for chemical remedies for protozoal diseases. Organic arsenical compounds are being found useful for the above purpose.

It is a curious fact that atoxyl shows powerful effects in some cases of trypanosomal diseases,

though atoxyl is devoid of action over trypanosomes *in vitro*, i.e., if strong solutions of atoxyl (1 in 50) be mixed with cultures of trypanosomes in test-tubes, the cultures appear to be unaffected Ehrlich (Munich, *Med Woc*, Nov. 10, 1908) explains this discrepancy by supposing that the body tissues cause some reduction products of atoxyl to be formed, and that the active trypanocidal action is due to such reduction products. By the action of weak reducing agents as sulphurous acid on atoxyl, paramidophenyl arsenoxide is readily formed. This substance in test-tube experiments is commonly more actively trypanocidal than atoxyl, whereas it requires a solution of 1 in 20 of atoxyl to produce any action at all upon trypanosomes. The paramido-arsenoxide in solution of 1 in 100,000 kills the trypanosomes immediately, while 1 in 500,000 kills them in three minutes. So the trypanocidal action of atoxyl lies in the fact, that after injection, by the reducing metabolism of the body, minute quantities of a substance highly toxic to the parasite are continuously formed in the body for a certain length of time. The vitality of the parasites is depressed, being continuously as it were for a time in a toxic solution, and sometimes they are killed off in this way.

The following extract from the book named "*The Chemistry of Synthetic Drugs*" by Percy May, B.Sc. (Lond), 1912, is interesting, inasmuch as it furnishes, as it were, a proof of the above from the clinical point of view.

"Some significant facts have been brought to light which seem to indicate something of the nature of these metabolic changes. For example, there seems to be a close connection, between the therapeutic efficiency of atoxyl and the resistance offered to it by the organism. Thus, a mouse which can readily tolerate $\frac{1}{100}$ is no better influenced therapeutically by this dose than is an average mouse which can only stand $\frac{1}{100}$ by that dose. One which was very sensitive and was poisoned by $\frac{1}{100}$ showed a very marked trypanocidal effect. This seems to indicate that the organism changes atoxyl into a more toxic substance, which also acts very strongly on the parasites. A change of this kind seems probably to be connected with the reduction of the arsenic from the pentavalent to the trivalent state."

I may mention here that I met with a case which may be regarded as a clinical counterpart to the laboratory experiment described above.

A boy about six or seven years was suffering from typical symptoms of kala-azar with marked enlargement of spleen and double rise of temperature. I began injecting $\frac{1}{2}$ grain of soamin every alternate day, and made only three or four injections when the boy suddenly developed signs of arsenical poisoning. The symptoms were diarr-

hoea, frequent micturition, urine showing traces of albumen, which was previously absent, slight congestion of the eyes attended with marked photophobia, so that the patient could not open his eyes. The boy also complained of a burning sensation over his body which was not, however, marked. I stopped the injection of soamin and I gave him an injection of a dose of staphylococci vaccine.

I must confess that I made the injection of the vaccine without having much definite object in view. My ideas were vaguely these. The staphylococci vaccine is not only a good remedy for leucopenia recommended by such authorities as Sir L. Rogers, but it also shows powerful metabolic activities in other directions also. For example, in diabetic carbuncle, which is generally a staphylococci infection, the injection of staphylococci vaccine causes diminution of sugar in the urine. So I made the injection as a random shot, with the hope that it may cause some benefit regarding the poisonous symptoms produced by atoxyl. By good fortune the poisonous symptoms began to diminish and the patient began to improve. He got rid of his fever within a week without any relapse. It is about two years since the case was treated by me, and he is doing well, without subsequent development of optic neuritis or atrophy or any eye trouble whatever. In this case I think there had been development within the body of an extra dose of reduction product of atoxyl which produced some toxic symptoms in the host, at the same time killed off the parasites.

All these facts are in agreement with the Ehrlich's theory that the beneficial action of atoxyl is caused by the gradual formation within the body of some reduction product, which is toxic to the parasite and to a certain extent to the host also. The formation of this toxic by-product within the system, so as to sterilize the system of the host at once, will be disastrous to the host. So the parasites within the system when they are killed off, meet with their fate by the gradual action, a very dilute toxic fluid, as we have explained before in connection with our quinine experiments.

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THE SIGNIFICANCE OF ARNETH'S LEUCOCYTE COUNT

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ANYONE who is in the habit of examining blood-films and making leucocyte counts must have been struck by the variety in shape and size of the nuclei of the polymorphonuclears. The nucleus may be simple in structure, often having the shape of a horseshoe, or it may be V or Z shaped. Its outer ends are generally broader than the central portion where there is a thinning of its substance, which may thus form two lobes, nearly or entirely separate. Similarly by sub-division, the numbers in other leucocytes may have three, four, or even five lobes completely or nearly completely separated from each other.

That these variations may be significant Arneth appears to have been the first to recognize, in 1904. I have not had access to any of the original papers on the subject and my information is derived from the *Practitioner* (June 1908 p. 836 and March 1914, p. 413). References to the original papers will be found there.

Arneth showed that the polymorphonuclears can be subdivided into groups according to the number of lobes in the nuclei. Five groups are so formed, according as there are 1, 2, 3, 4 or 5 lobes. In the blood of a normal person the proportions are found to be pretty constant and the average count from a number of cases is taken as the normal.

The method has been tried by various workers, such as Groll, Paulicek, Rayevskay, Kramer and Cooke. It has been shown that the proportions of the groups may be altered in different morbid conditions. Special attention has been directed to tuberculosis and typhoid, and it is found that there is a distinct shift to the left in these and other diseases. Group 2 is increased at the expense of group 3, which in turn may be increased at the expense of group 4, group 1 is also increased. This shift to the left has been most fully determined in phthisis, and is more marked the more advanced the disease.

For some time past I have been working at the method, and have obtained results that are generally confirmatory of those observations. The method is rather tedious but not difficult. First of all, it is necessary to find a normal, by making counts of the blood of healthy persons. In all my cases, normal and otherwise, the films were taken between 11 A.M. and noon so as to ensure standard conditions. This was about two hours after the morning meal. Possible fallacies due to variations in the differential leucocyte count owing to ingestion etc. were thus avoided.

It is necessary to count at least 500 polymorphonuclears in each case. After getting over initial difficulties, I succeeded in obtaining a satisfactorily constant normal count, the greatest departures from the mean not being very large. The work involved took so much time, and was so trying to the eyesight, that I trained a young and able Burman, who is skilful with the microscope to employ the necessary technique, and I found that his methods, under checking, were satisfactory.

My own normal was somewhat different from Arneth's, and more resembled Kramer's, but that of my assistant proved to be a close approximation to that of Arneth or Rayevskay. In work of this sort it is necessary that one worker alone should make the counts, in order to minimise personal error, as in the estimation of the opsonic index. Further it was found that by employing a mere enumerator, bias in favour of a certain result was eliminated, since he did not know in what direction the result might be expected to tend. Re-counts of any case were made in ignorance of the result of the earlier enumerations.

Arneth's normal reads thus —

| I | II | III | IV | V |
|---|----|-----|----|---|
| 5 | 35 | 41 | 17 | 2 |

That adopted by me —

| I | II | III | IV | V |
|-----|------|-----|----|---|
| 4.5 | 34.5 | 40 | 18 | 3 |

and was based on the study of over 24 cases.

On these lines, counts were made of the blood in about 130 cases of different morbid conditions.

As the result, it was found that there was a decided shift to the left in such diseases as tuberculosis, malaria and measles. This shift to the left was not constant and varied in amount. Thus, in 10 cases of tubercle, mostly of the lungs, there was a marked left-shift in four cases, a definite shift in 5 cases, and no shift in one case. In my cases the amount of shift is not so pronounced as in the work of Paulicek or Kramer, and they are perhaps too few on which to build generalizations, but, as far as can be judged, the phenomenon is a real one. It is claimed that the amount of shift is of prognostic significance, and it is hoped to investigate this with further material. There is, however, among my cases evidence that as the disease advances the left-shift increases in amount.

In *measles*, in most cases there is a decided shift to the left. Of 20 cases studied, the shift was marked in 7, definite in 6, slight in 2, and not found in 5. No relation between the amount of shift and severity of the infection could be established as all the cases were nearly equally mild.

It was in some cases of this disease that the greatest amount of shift was seen. It was a

very distinct phenomenon Thus, 2 cases gave the following readings —

| Group | I | II | III | IV | V |
|-------|------|------|------|-----|---|
| (a) | 15 3 | 53 5 | 28 0 | 3 2 | 0 |
| (b) | 13 5 | 54 3 | 29 0 | 3 2 | 0 |

In these instances it was easy to see that the polymorphonuclears were abnormal. In the first place, there was a leucopenia, it being necessary to make 6 films in order to count 500 polynuclears. The polynuclears were not relatively increased, and it was readily observed that a considerable proportion of them had large swollen nuclei, showing little tendency to subdivide into lobes, and in comparatively few was there that complete fission of the lobes which is common in normal bloods.

In *malaria* the shift is pretty constant. Out of 21 cases, it was marked in 4, definite in 13, and absent in only 4. It was, on an average, equal in the tertian and subtertian fevers, and a single case of quartan gave a similar finding.

A similar shift was seen in some cases of fever to which no cause could be assigned. Most of these resembled malaria, but no parasite could be found. In other cases of fever of undetermined cause the left-shift was absent or very slight. On the whole it may be fairly said that absence of the left-shift is presumptive evidence against malaria.

In inflammatory conditions of a local nature, not associated with a general infective process, there is as a rule no shift to the left. Thus, it was absent in a case of boil, of acute abscess, of poisoned wound, and of septic bubo. It was present however in one case of acute lymphangitis and in one of indolent ulcer.

It was well marked in two cases of *filaria fever*, and found in a case of acute diarrhoea, in 2 cases of acute lobar pneumonia, in acute pleurisy, acute bronchitis, quinsy, and acute rheumatism (one case of each).

A marked shift to the left was found in an obscure case the day before he died. Death was due to septic absorption from a gangrenous inflammation of the caput caecum coli and ascending colon. A left-shift was not found in two cases of the peculiar general infective disease that is not uncommon in Rangoon, especially in morphine injectors, and described by Captain Whitmore, I M S.*

Evidence was obtained of a *shift to the right* in certain morbid conditions, *eg*, in syphilis, amoebic dysentery, and ankylostomiasis. But the results were on the whole equivocal, and further observations are being made. In one case of acute hepatitis that yielded to emetine there was a shift to the right, and the same phenomenon was well

marked in a case of sprue in a Scotchman. On the other hands, in three cases of acute diarrhoea with fever there was a pronounced left-shift.

In *leprosy* there is evidence of a definite shift to the right. This was seen in 12 out of 16 cases examined. In 3 there was a left-shift. It was in cases of this disease that the most marked shift to the right was found. Thus, in two instances the reading was —

| | I | II | III | IV | V |
|-----|-----|------|------|------|-----|
| (a) | 1 5 | 24 5 | 48 1 | 23 0 | 2 9 |
| (b) | 1 6 | 25 5 | 49 3 | 21 0 | 2 6 |

A case of this sort gives a picture that contrasts in a marked manner with that of the measles cases mentioned above. There are few polynuclears with one of two lobes, nearly all show subdivision very distinctly and this subdivision is complete in a large proportion of leucocytes.

A right-shift was noted in a single case of scurvy, and in a case of what was diagnosed pernicious anaemic.

It is not yet possible to make dogmatic generalizations as to the value of this method in regard to prognosis and diagnosis. More extended observations must be made. There is some evidence that the count may be of value in diagnosis in certain cases, *eg*, of suspected tubercle. Thus, observations were made in a case of pleurisy, possibly due to tubercle, a case of subacute pneumonic consolidation, a case with obscure physical signs in the lungs,* and a case of low irregular fever, without discoverable physical signs. In none of those was there a shift to the left, and so far this may perhaps be regarded as presumptive evidence against tuberculosis. Similarly in a doubtful case of fever, absence of shift is, I believe, an indication against the diagnosis of malaria.

The increase or decrease in the first and second groups as a rule bears no relation to the differential count. It might be supposed that an increase in these groups is merely an expression of a high percentage of polymorphonuclears, and *vice versa*. But this is not the case. There is no increase of these leucocytes in malaria, but generally a decrease, and yet the left-shift is fairly constant. A definite left-shift may accompany a relative polynuclear increase or a decrease, or the ratio may be normal. In measles there is no increase of the polymorphonuclears.

Nor is the temperature of the patient related to the result of the count, a low temperature may go with a definite left-shift, and *vice versa*.

In the case of tuberculosis, however, there is, I think, some evidence that the polymorpho-

* This case was thought to be in all probability one of Tuberculosis. Since writing this paper it was proved to be a case of "Whitmore's disease".

nuclears are relatively increased the more advanced the disease. The point will be investigated.

The following table shows counts obtained in different diseases. They are chosen to illustrate the points discussed.

| Case | I | II | III | IV | V | Polymorphonuclears per cent |
|----------------------|-----|-----|-----|-----|-----|-----------------------------|
| Normal | 45 | 315 | 400 | 180 | 30 | — |
| Phthisis | 123 | 483 | 318 | 54 | 02 | 70 |
| Phthisis | 132 | 488 | 358 | 40 | 02 | 67 |
| Subtertian | 81 | 514 | 350 | 52 | 00 | 41 |
| Double Tertian | 115 | 514 | 297 | 34 | 00 | 49 |
| Measles | 68 | 506 | 394 | 31 | 01 | 65 |
| "3 day fever" (?) | 146 | 472 | 349 | 33 | 00 | 55 |
| Filarial fever | 76 | 536 | 333 | 48 | 02 | 53 |
| Acute Conjunctivitis | 30 | 370 | 486 | 110 | 04 | 48 |
| Septic Bubo | 25 | 389 | 419 | 129 | 13 | 76 |
| Leprosy | 30 | 276 | 516 | 159 | 19 | 65 |
| Spiro | 05 | 220 | 385 | 282 | 108 | 59 |

I hope to continue the study of this method, in order to find out the extent of its value in the diagnosis and prognosis of infective and other conditions.

CONCLUSIONS

- (1) Arneith's method is of distinct value in clinical pathology.
- (2) The ratio of the different groups is fairly constant in normal bloods.
- (3) There is a shift to the left, of greater or less extent, in several infectious diseases. It is well seen in measles, and is pretty constant in malaria.
- (4) There is evidence of a right-shift in some infections, notably in leprosy.
- (5) In tuberculosis the shift is more pronounced the more advanced the disease.
- (6) Absence of shift is presumptive evidence against a diagnosis of tubercle or malaria.

A Mirror of Hospital Practice.

HEART STRAIN AMONG SEPOYS

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THE returns of a hospital accommodating the sick of some 3,800 men, all of good physique shew that during the last two and a half years, there have been no less than 37 admissions for diseases of the heart. Twenty-five of these were diagnosed as disordered action and twelve as

valvular disease. Thirteen have been sent on sick leave with a view to invaliding. These figures, however, do not represent adequately the incidence of damaged hearts, as others, which might well come under this heading, have been returned as debility. These cases are not transient affections, such as might be caused by flatulent dyspepsia, and they are not cases of physiological enlargement and increase of pulse rate; they are cases in which the patient has, either permanently or for some months, suffered bodily infirmity on account of the condition of his heart.

Analysis of the cases indicates that there are two outstanding causes—malaria and overstrain, and that a combination of these two is responsible for a large proportion. Given this, there is every reason to suppose that, by the exercise of care, many subjects might be protected from heart injury.

A short outline of a few cases will be sufficient to indicate the type of injury, and the circumstances under which it occurs.

1. A case of mitral incompetence in a young man of good physique, arising from no known cause and progressing steadily in spite of prolonged rest. The patient was invalided in a condition precluding him from any wage earning occupation.

2. A young Punjabi, belonging to a Mountain Battery, complained of shortness of breath. He was found to have a large heart and definite mitral regurgitation, probably due to relative incompetence. There was no predisposing disease. The patient was invalided as he showed no signs of recovering.

3. A case very similar to the above, complaining of persistent throbbing of the chest. The pulse rate was constantly above 100, occasionally a slight systolic bruit could be heard at the apex.

4. Afridi, æt 25, shortly after manœuvres, complained of pain over the region of the heart. The heart was large, rapid in action, occasionally irregular. The front of the chest was heavy, and the patient incapable of any exertion. After six months there is some degree of recovery, so that the patient is capable of light work, but any effort is liable to cause pain over the heart.

5. Sikh, æt 23, 3 years' service, complained of dyspeptic pains shortly after manœuvres. He was found to have a rapid dilated heart with mitral reflux.

6. Sikh, æt 22, complained of increasing shortness of breath, dilated heart, rapid pulse, evanescent adventitious sounds. Invalided after four months' treatment.

7. Afridi, æt 34, 14 years' service, complains of breathlessness on exertion. Has been doing

extensive hill-climbing lately Dilated heart, impure first sound, no adventitious sounds Has had several attacks of malaria during his service Remains incapable of hard exercise

8 Afridi, æt 30 years, 11 years' service Condition and result the same as the preceding case

9 Sikh, æt 21, 2 years' service Fell out in a fainting condition on a long hill parade in 1913 He had recently recovered from an attack of malaria Was off duty for two months Having apparently recovered, he again became ill during the manoeuvres of 1914, with a markedly dilated heart Invalided after four months' rest with little or no improvement

10 Sikh, æt 22, 3 years' service, developed a well-marked mitral regurgitation, systolic apical murmur, and reduplicated second sound No history of illness

11 Afridi, æt 25, exceptionally good khud runner and hockey player, sent up by his company commander on account of loss of form Dilated rapid heart After three months rest was able to take his old place in the Regimental team

12 Afridi, æt 20, looks healthy, states that he suffers from attacks of giddiness Heart apex beat in the 7th interspace No adventitious sounds Pulse 120

13 Punjabi Mussalman, æt 24, states that, while on outpost duty about ten days ago, he had four attacks of malaria, and performed his duties between the crises Now complains of giddiness No anæmia, the pulse rate is 110, and the systolic sound impure Returned to the normal after a month's rest in bed

14 Punjabi Mussalman, æt about 36, sent up by his C O as he was continually falling out on parade Dilated heart with apex beat into 7th space Invalided

It is perhaps worthy of note that in none of these cases was there any trace of arterial disease, nor was there any trace of aortic incompetence Further, every effort was made to exclude symptomatic heart disturbances due to anæmia

We must, therefore, arrive at the conclusion, that, in the ordinary occupations and diseases of the sepoy, there are to be found influences which act adversely on the heart Of the diseases, the most common and apparently the most potent is malaria Whether malaria, unassisted, produces more than transient dilatation is an open question, but there is ample evidence that, under given circumstances, persistent disability of the heart may follow an attack

The rapidity of the pulse rate during an attack suggest that the heart in some part of its musculature or nerve supply is influenced and it is to be

presumed that some period of rest is necessary for the re-establishment of the normal state Unfortunately, such days of grace are not always forthcoming, the patient returns, taking up his duty where he left off, duty that may demand the most of a sound heart, and later, he is admitted to hospital with a transitory disorder converted into a permanent one

The fact that malaria does produce temporary disorders or weakening of the heart can hardly be called into question There is evidence in the abnormal sounds which appear during an attack, to disappear a few days later, and in the rapid pulse which sometimes persists for days after the fever Lately, men have been coming in with malaria from an outpost situated on the top of a steep hill Several failed to report their first attack, but did duty entailing hill-climbing, on the following day The consequence is that when these men came to hospital, their period of convalescence was prolonged till the heart had resumed its normal state

Death from heart failure, in uncomplicated malaria, must be rare, but in the following case no other cause could be assigned The patient a Sikh æt 30, of good physique, but rather fat was admitted to hospital suffering from malaria Temperature 101, no parasites found in the peripheral circulation, spleen enlarged He was given quinine grs 30 daily The temperature remained between 101 and 102 for two days On the early morning of the third day the mouth temperature rose to 104, the patient complained of faintness, the extremities were cold, and the pulse thready He was perfectly conscious, and, after stimulants, stated that he felt better, but died quite suddenly shortly after The *post-mortem* examination revealed old pleural adhesions, some degree of fatty liver, and two small recent infarcts in the right kidney The heart was rather small but showed no naked eye abnormality The spleen was packed with parasites of malignant malaria

Further evidence is to be found in the concurrence of malaria and disordered action of the heart Of the regiments from which these cases are drawn, that in which malaria is most prevalent, affords the largest number of examples

Influenza, again, undoubtedly exerts a pernicious effect on the heart During a recent epidemic, out of some fifty cases, the pulse rate in sixteen cases remained over 100 for more than a fortnight after the temperature had become normal In one case it was 140, this case recovered entirely after six weeks' rest Two others remained with tachycardia after an interval of three months The main feature of these cases was the extraordinary irritability of the heart The slightest exertion caused an imme-

diate and marked acceleration which took some time to pass off. It is obvious that cases in this condition are liable to permanent damage, if taxed even in the slightest degree.

To turn now to the other great factor, by no means all the cases can be attributed to predisposing weakness. A certain number, previously quite healthy hearts, are damaged by strain and by strain alone. Heart strain being common in young men of athletic tendencies it is too much to hope that Sepoys will be free from it, but Sepoys are trained under responsible supervision, so that the incidence of such cases reflects on the discretion of their instructors. Some degree of dependence on Native Instructors is inevitable, and it is in this necessity that a serious obstacle to scientific physical training lies. It is almost impossible to make these men realise that the benefit derived is not necessarily in direct proportion to the amount of work done. It is impossible for the Superintending British Officer to be everywhere at once, and, while his back is turned, all sorts of excesses are committed in the name of physical training. The batch is "forced," the stronger members flourish, but the younger and weaker suffer, their immature hearts fail to keep pace with their outward development, and a certain number will be found to have hearts on the border-line of dilatation. Later, some appear in a state of complete physical breakdown.

The onset of heart strain is so insidious that it is difficult to date its origin, but it is probable that, of the men who fail to complete their full term of service for physical reasons, many owe their breakdown to overstrain in the early years of their service. The later training, however, cannot be held guiltless, as it is to be noticed that a fair proportion make their appearance shortly after manœuvres.

The Sepoy works under a disadvantage in the present system of equipment. A large proportion of the weight is carried across the chest, constricting it and being lifted with each respiration, thus wasting an incredible amount of energy. Different races have chosen their own methods of carrying their burdens, but I know of no people who voluntarily impede themselves by strapping their loads across the chest. It is to be hoped for the benefit of the Sepoy, that the English pattern of equipment will find its way into the Indian Army.

Officers do not always remember, in gauging the length of field exercises, that they themselves are working under very different circumstances from the men, and that they, by reason of their better equipment, undergo far less fatigue during the day.

Conclusions—

1 Overstrain of the heart is a common con-

dition and is liable to lead to permanent unfitness. Not a few cases are due to excessive or unsuitable physical training. Young recruits are particularly exposed to this danger. They should be under constant medical supervision, and their training delayed if there is any sign of strain. If, for any reason it is decided to enlist them under the usual age, these should be the object of special care.

2 Malaria produces temporary weakness or irritability of the heart. Exercise before the lapse of a sufficient period for recuperation is likely to lead to lasting disorders.

3 Every effort should be made to abandon fixed routine in favour of training suited to the individual. This necessity, together with a few simple physiological facts, might well be impressed on the minds of the native instructors.

IODINE AND VACCINATION

By L. BODLEY SCOTT, M.D., D.P.H.,

MAJOR, I.M.S.

IODINE was recently extolled in the pages of this *Gazette* as a preliminary disinfectant of the skin in vaccination, and its use appeared to be so simple and convenient that many medical officers must have felt tempted to introduce the method into the routine of their vaccinating staff.

At a conference of the Civil Surgeons of Assam recently held in Shillong the question of the best means of preliminary cleansing came up for discussion. The iodine method was advocated, but it was suggested that it should first be tried on calves in the vaccine dépôt to make sure that it would not in any way interfere with the success of vaccination.

Some experiments were therefore carried out, partly during August and partly during November and December, 1914, in the ordinary course of preparing calf vaccine at the Shillong vaccine dépôt. Among the calves being vaccinated one was occasionally taken at random and prepared with iodine instead of by the usual method of cleansing the skin. Each iodine calf was thus vaccinated along with one or more others, with the same lymph and under the same conditions.

The method of preparation by iodine was as follows—

- (1) The skin of the abdomen was shaved and washed with soap and water.
- (2) All soap was removed with clean water.
- (3) The shaved area was then dried with a towel.

(4) After five or ten minutes interval tincture of iodine was painted over the area with a cotton swab

(5) When the iodine was dry vaccination was performed as usual, punctures being made with a vaccinating lancet and lymph rubbed in with the back of a spoon

The usual method of preparation employed in the dépôt is as follows —

(1) The skin is shaved and washed with soap and water

(2) It is then rubbed with turpentine and this is removed with more soap and water

(3) It is then swabbed with perchloride of mercury lotion one in one thousand, and this is again removed with soap and water

(4) Vaccination is then carried out as above

Twelve calves were vaccinated by the iodine method, and, during the same periods 47 by the usual method. Following the customary routine of the dépôt, the vesicular material removed on the sixth day was carefully weighed and the yield of each calf recorded

RESULTS

The average yield of the iodine calves was 7.7 grammes and of the others 26.6 grammes

Of the iodine calves, two developed so few vesicles that no useful amount of vesicular material could be removed. The other ten yielded from 2.0 to 25.5 grammes. Of the 47 control calves, one yielded none and the remainder from 9.5 to 62.8 grammes

It was plain that iodine as used in this experiment seriously interfered with the development of vesicles. This was in fact obvious to the eye without any calculation of the weight of lymph yielded. Instead of the usual thick crop, only a few scattered vesicles formed on the scarified area. The difference lay in the number of vesicles which developed and not in their size or quality. Those which did form were normal in appearance. In none of the iodine calves did vaccination actually fail altogether, but the success rate per puncture was reduced to about 25 per cent instead of the usual 80 to 90 per cent. Only two of the iodine calves yielded anything like a good crop of vesicles

RIGHT SCROTAL FÆCAL FISTULA

BY W. VOST,

LT COL, I M S,

Civil Surgeon, Fyzabad

History.—It was an ordinary case of reducible scrotal hernia of two years duration in a boy of 12 years of age. Nearly a month and a half before the

operation, the hernia became swollen, irreducible and extremely painful, and the parents thought an abscess was forming, and treated it locally for the same. Then it burst, and left a fistulous opening through which faecal matter began to pour out. The boy's general health was fairly good and he was passing faeces both through the anus and the scrotal fistula. The fistula was a source of constant trouble, as the foul smelling faeces kept on coming in small quantities through it, soiling his clothes and legs. The fistula 1" long and $\frac{1}{2}$ " broad was situated at the front and lower part of the right half of the scrotum. Its edges were somewhat thickened and ulcerated, no pain, no discharge of pus. The whole scrotum was a little cedematous. The patient visited several dispensaries and other places but nowhere was anything done. On admission in the District Hospital he was given castor oil, and an enema one day before, and soap and water three hours before the operation. Nevertheless faeces came out when the patient strained under chloroform. He was directed to take no food for 18 hours before the operation.

Operation.—The operation was performed on 4th October under chloroform. The skin was painted with Tincture of Iodine B. P. The ordinary hernial incision was made, and extended a little downwards. The sac was opened and the bowel was followed down to the fistulous opening and freed from the skin and the sac was separated and tied with silkworm gut at the internal ring and cut off. The bowel was clamped on each side of the fistula, thoroughly washed inside and out, and the opening in it and the scrotal wall trimmed of sloughy tissue. Three rows of very fine silk continuous sutures were put in to close the opening in the caecal wall, and oozing of blood on removal of the clamps was stayed by pressure forceps. Exposure to air and application of adrenalin solution (1 in 1,000). Bassini's operation was done with silkworm gut to approximate the pillars and catgut to suture the skin. A single application of lint soaked in 1 in 2,000 perchloride of mercury was sufficient to secure union by first intention.

Treatment.—The patient made an uneventful recovery. There was no complication, no rise of temperature, and he was discharged quite cured on the 23rd October, 19 days after the operation. The patient was given no food for the first 48 hours except water to sip, a teaspoonful at a time. On the third day he had two chittacks of milk and this was daily increased by two chittacks for three days. On the sixth day patient passed a regular motion and he was given one seer of milk. He was not allowed to sit up in the bed for the first ten days and he had his ordinary meal on the 15th day when he was allowed to sit up and to stand.

Indian Medical Gazette.

MARCH.

THE ALL-INDIA SUB-ASSISTANT SURGEONS' CONFERENCE

WE are sorry we have not earlier been able to find room for a notice of the very interesting meeting of the All-India Sub-Assistant Surgeon's Conference held at Nagpur during the Christmas week under the Presidency of Colonel G W P Dennys, CIE, IMS, the Inspector-General of Civil Hospitals, CP. The existence of this Association, which has done good service for the most useful class of medical men whom it represents, is mainly due to the efforts of Mr Ramachandra Iyer, of Mysore, and to-day the membership stands at the high figure of 2,150 members.

In his presidential address Colonel Dennys traced the history of this branch of the Medical Department from its initiation. The Association was founded in 1908, and has now 31 branches in India and Burma. Colonel Dennys gave a very full account of the successive steps which have been taken by the Government of India to improve the pay and local conditions of this service, and in the following words he held out good hopes of further improvement —

"The Local Government (CP) thoroughly realised and it is an open secret that a scheme is now under the consideration of the Hon'ble Sir Benjamin Robertson, for a considerable rise in the pay of all grades of Sub-Assistant Surgeons serving in these Provinces, I can assure you, Gentlemen, that Sir Benjamin Robertson is most sympathetic in his desire to improve your pay, and it is only because the local administration has not hitherto been able to see their way to financing this scheme that it has not up to date been brought into force. A scheme of this sort has not only to receive the approval of the local administration, but it has to be submitted to the Government of India, because it is necessary for them to satisfy themselves that it does not deleteriously affect the recruitment of Sub-Assistant Surgeons in other Provinces. I cannot at this stage give you details of the proposals I have made, or what action the local administration proposes taking, but I have been authorised to say that your case is being sympathetically considered; and I am confident that before very long something will be done to improve your pay and prospects. Unfortunately, owing to the financial stringency caused by the great war that is now raging, the improvements may not come into force quite as soon as they would otherwise have done."

He also made the following announcement which will be read with profound satisfaction by all who recognise the good work done by the Sub-Assistant Surgeons —

"And now, Gentlemen, I have the pleasure to announce to you to-day the latest effort that has been made by a sympathetic Government to try and improve your prospects. Orders have quite recently been received from the Government of India that in specially deserving cases Sub-Assistant Surgeons with not less than 20 years' service and with exceptional attainments may be promoted to the rank of Civil Assistant Surgeon. This is a privilege that you have long been asking for and the fact that you can now be so promoted will be a source of much gratification to all."

The Nagpur Medical School, which for long did useful work but had been closed for some years past has been reopened and renamed the Robertson Medical School, after Sir B Robertson KCMG, the sympathetic head of the CP Administration.

Current Topics.

MILITARY ASSISTANT SURGEONS' NEW PAY RATES, &C

THE following notification is published with effect from 11th November, 1914, and will be received with considerable satisfaction by members of this branch of the Service.

The pay and promotion rates are substantially increased.

| | New Rates | Old Rates |
|-----------------------|----------------|-----------|
| 4th class | Rs 100 per men | 85 |
| 3rd class | " 150 " | 110 |
| 2nd class | " 200 " | 150 |
| 1st class | " 250 " | 200 |
| Rank of Lieut | " 350 " | 300 |
| Rank of Capt or Major | " 450 " | 400 |

The English furlough pay is also increased instead of from £55 to £170, we now find the new rates to be £80 to £220. Study leave in England or in India is also granted.

We append the Government Notification —

MEDICAL DEPARTMENT

Subordinate.

With the approval of the Most Hon'ble the Secretary of State for India the Government of India sanction the following changes in the conditions of service of Military Assistant Surgeons of the Indian Subordinate Medical department, with effect from the 11th November, 1914 —

I — RECRUITMENT.

(a) The standard of preliminary education of candidates for admission into Medical Colleges shall be raised to, or be equivalent to, that required by the General Medical Council of Great Britain and the present course of professional study shall be extended from four to five years.

(b) Candidates selected for admission as Military Medical pupils shall be on probation for six months, and shall be liable, at any time, to removal from the College, if in the opinion of the Director-General, Indian Medical Service, they are, for any reasons, unlikely to become efficient Assistant Surgeons

(c) On completion of their course of study at a Medical College, and after obtaining a qualification recognised by the General Medical Council and passing the examination held by the Director-General, Indian Medical Service, they will be admitted into the service as 4th class Assistant Surgeons, and will be required to serve for a period of seven years before they can claim their discharge

Any military medical pupil failing to obtain his qualification on the completion of his five years' course of study will, at the discretion of the Director-General, Indian Medical Service, either be remanded for a definite period, at his own expense, or he may be summarily removed if the results of the examination show that he is not likely to become an efficient Assistant Surgeon

II—PAY AND PROMOTION

(i) The rates of grade pay of Assistant Surgeons shall be as follows—

| | | |
|---------------------------|-----------------|-------------------|
| 4th Class | Ranking as Sub- | Rs 100 per mensem |
| 3rd Class | Conductors | " 150 " |
| 2nd Class | Ranking as Con- | " 200 " |
| 1st Class | ductors | " 250 " |
| Senior Assistant Surgeon | | |
| with the honorary rank of | | |
| Lieutenant | " 350 " | |
| Senior Assistant Surgeon | | |
| with the honorary rank of | | |
| Captain or Major | " 450 " | |

(ii) Subject to good-conduct and efficiency, and in case of 3rd class Assistant Surgeons, to the passing of a professional examination also, as detailed in the next clause, a service of seven years in the 4th class and five years in the 3rd and 2nd classes respectively, will render an Assistant Surgeon eligible for promotion to the next higher class

(iii) Third class Assistant Surgeons will, before being eligible for promotion, be required to pass an examination in certain subjects at any time before their twelfth year of service. This examination will be held annually under the orders of the Director-General, Indian Medical Service. No allowance will be made for failure to pass, and a candidate may be remanded by the Director-General, Indian Medical Service, to a further course of study for a period not exceeding two years, if the results of this examination are unsatisfactory

(iv) Promotion to the grade of Senior Assistant Surgeon with the honorary ranks of Lieutenant, Captain or Major will be made by selection, in accordance with the Royal Warrant dated the 26th September, 1911

(v) Assistant Surgeons in the service on the 11th November, 1914 (including those who have been specially promoted, degraded or passed over for promotion during their service) will be classified from that date according to their length of service as follows—

Those with less than 7 years' service, will be graded in the 4th class, those with 7 and less than 12 years' service, will be graded in the 3rd class, those with 12 and less than 17 years' service, will be graded in the 2nd class, those with 17 years' service and over, will be graded in the 1st class, and their rank in their new class will in like manner be fixed according to the date of their warrant rank

(vi) An Assistant Surgeon in the Warrant grade who has been specially promoted to a higher class may receive further promotion in accordance with the time scale, until he reaches the top of the Warrant grade, but his

advancement to the Commissioned grade will be deferred until all those originally senior to him have been promoted or superseded. An Assistant Surgeon who has been specially promoted to the Commissioned grade will be similarly treated, as regards substantive promotion

III—ENGLISH FURLOUGH PAY

The rates of English furlough pay will be as follows—

| | £ per annum |
|-----------------------------------|-------------|
| 4th Class | 80 |
| 3rd Class | 110 |
| 2nd Class | 120 |
| 1st Class | 140 |
| Senior Assistant Surgeon with the | |
| honorary rank of Lieutenant | 165 |
| Senior Assistant Surgeon with the | |
| honorary rank of Captain or Major | 220 |

IV—STUDY LEAVE

Study leave will be granted, with allowances as noted below, in accordance with rules which will be issued under the orders of the Director-General, Indian Medical Service—

(a) Rs 50 per mensem whilst studying at Institutions in India

(b) Four shillings per diem during the period of study in the United Kingdom or out of India

The amount of study leave will be restricted to one month for every year's service, up to a maximum of 12 months in all

PAY OF CIVIL ASSISTANT SURGEONS

THE following notification is very satisfactory. It is especially when called upon to act as Civil Surgeons and to keep up their position as such that these officers have felt the pinch. The subsequent concession about officiating Civil Surgeons is as important as interesting. Let us hope that it is a step toward abolishing for ever that illogical anomaly "officiating pay" in all branches of the Services in India

"In connection with a scheme for the improvement of the pay and prospects of the Civil Assistant Surgeons in Bengal, which was sanctioned by the Government of India in Home Department Resolution No 1142-50, dated the 22nd August 1898, it was decided for the first time that a certain number of Civil Surgeoncies should be opened to this class of officers. The pay to be drawn by a Civil Assistant Surgeon when appointed to a Civil Surgeoncy was then fixed at Rs 350-30-500 a month. In 1912 the pay and prospects of the Civil Assistant Surgeons in Bengal were generally revised, but the rate of pay to be drawn by these officers holding Civil Surgeoncies was left unaltered. The question of improving their pay has, however, since been under consideration, and the Government of India have now decided in the Home Department letter No 844, dated the 21st September 1914, cited in the preamble, that the pay of Civil Assistant Surgeons appointed to be Civil Surgeons in Bengal should be raised from Rs 350-30-500 to Rs 400-40-600 a month. These orders will have effect from the 21st September 1914

2 The Government of India have also subsequently sanctioned in Home Department letter No 1159, dated the 3rd December 1914, the following concessions to the Civil Assistant Surgeons appointed to officiate as Civil Surgeons, viz—

(i) that Civil Assistant Surgeons officiating as Civil Surgeons should be allowed, irrespective of their grade, to draw the full minimum pay of the post, in recognition

of their higher status and increased responsibilities and of the additional expenses incidental to short incumbencies, and

(ii) that when a Civil Assistant Surgeon has drawn pay at the rate of Rs 400 per mensem for a year as a Civil Surgeon, officiating or substantive, he should be eligible for his first increment in the scale of pay of Civil Assistant Surgeons promoted to Civil Surgeoncies.

These orders will have effect from the 3rd December 1914.

It now remains to regulate in a similar manner the pay of Military Assistant Surgeons when acting as Civil Surgeons. To them especially "the higher status" and the "increased responsibilities" apply. These officers find it extremely difficult to keep their proper position among the European communities on their present rates of pay.

THE EXTRA £100 PENSIONS

"THE Secretary of State for India has approved of the proposal that the officers of the Indian Medical Service who have been selected for the extra pensions of £100 per annum for the year 1914-15 shall not be deprived of them if, in consequence of the suspension of retirements, they are not able to retire during the current financial year. The grant of these extra pensions, therefore, will take effect from the date on which they may retire hereafter, and this will not preclude the grant of extra pensions to be allotted during subsequent years to other officers."

The above communique is very satisfactory. These extra pensions of £100 per annum are governed by A R, I, Vol I, para 734*. They are only applicable to those senior officers who entered the service before August 1889, two are given to the old Bengal Establishment, one to Bombay and one to Madras. "These pensions are given to officers who cannot obtain promotion to the rank of Colonel on account of age or ill-health, but who would otherwise have been promoted."

Applications on special printed forms are required and are to be sent in by 1st March of each year preceding the beginning of the financial year in which the extra pensions become admissible.

For the origin of these pensions the reader is referred to *Chawford's* "History of the I.M.S.," Vol I, p 450, etc.

QUININE INJECTIONS

UNTIL fairly recently it was believed that hypodermic injections of quinine, as of other medicinal agents, meant more rapid and more concentrated action than is possible with administration by the mouth. Close clinical observations cast doubts upon this orthodox belief. The expected good results were not obtained from hypodermic injections of quinine. The first result was that physicians increased the dose of quinine for hypodermic

injection from 2—4 grains (as it was some 15 years ago) to 8 or 10 grains, in the hope of getting good therapeutic results. Meanwhile laboratory and clinical experiments were begun to test the comparative value of oral and hypodermic administration, the former in Italy and Germany and the latter in India (Major Megaw I.M.S., under Lukis at the Medical College) Mariani (Italy) made an intramuscular injection into the leg of a rabbit and from the muscle of the rabbit, killed 17 hours after injection, he recovered 66.5 per cent of the amount injected. Giemsa and Schaumann (Germany) added quinine solution to blood serum in a test-tube and found that a dense precipitate occurred. They tried various quinine preparations and concluded that the compound *hydrochloride of quinine and urea*, as it produced a less dense precipitate than other preparations, was the best to use hypodermically. Megaw from his clinical results stated that quinine by the mouth reduced the fever of malaria more quickly and effectively than hypodermically.

Before he had discovered Giemsa and Schaumann's work, Major McGilchrist started experiments made on the same lines but instead of looking for the preparations of quinine which gave the least dense precipitate he tried to find out if dilution of the quinine salts rendered solutions of these salts compatible with serum. He found that the precipitate got less and less as the quinine salt was more and more diluted and that finally in a dilution of about 1 in 150 of the quinine salt no precipitate was perceptible. Turning then to experiments on animals he found that when quinine was injected in this dilution, absorption was extremely rapid and effective, but unfortunately the skin at the seat of injection sloughed leaving an ulcer which took a couple of months to heal. He, therefore, regarded this method as unsuitable for clinical use and recommended the use of quinine in *extreme dilution intravenously* in cases of pernicious malaria, for instance 7 grains quinine bi-hydrochloride dissolved in 2 or 3 pints of saline. This extreme dilution not only obviated any danger from thrombosis or shock (from irritation of a strong solution) but afforded the additional advantage of attenuating the toxins and favouring their elimination.

The doctors at Panama who had found that quinine injections were very unsatisfactory in malignant cases of malaria saw a summary of this paper and concluded that this point of dilution would probably solve their difficulties. James (Panama) disregarding McGilchrist's statement that quinine in a dilution of 1 in 150 was not suitable for clinical use, used this method extensively and with apparently no ulceration or other drawbacks. He reported excellent results. He had also, before seeing the summary of the same paper, tried

* See Seton and Gould's Handbook, p 118

Bacelli's intravenous injections of quinine (a very strong solution), but these injections he concluded were dangerous to life. Latterly, he has given up hypodermic injections of quinine in favour of intravenous injections in extreme dilution for cases of pernicious malaria.

Quinine salts, unless in great dilution, are irritating and very injurious to the tissues at the point of injection. Again, regarding sterilization, none of the salts of quinine stands heating well.

Quinine injections in the strength frequently employed (1 in 10) are not infrequently attended by serious complications and dangers—

(1) *Necrosis* Quinine, unless in great dilution, kills outright all tissues which by diffusion it reaches.

(2) *Thrombosis and Embolism* A strong solution of quinine may cause thrombosis, if injected even near and not necessarily into a blood vessel.

(3) *Paralysis* This may be caused in two ways—

(a) by direct destruction of a nerve,

(b) by thrombosis in a large blood vessel, causing "ischæmic paralysis."

(4) *Ulceration*, if the necrosis caused by strong solution reaches skin surface.

In intramuscular injection, the necrosed area does not reach skin surface, so no ulceration results, the necrosed area is ultimately converted into a fibrous nodule in the muscle.

(5) *Tetanus*

All these ill-effects, including probably the last mentioned, can be obviated to a very large extent by using quinine in great dilution only.

By the intravenous injection of quinine in extreme dilution, the special dangers of the subcutaneous and intramuscular methods are avoided. There is no danger of necrosis, paralysis, ulceration or thrombosis. It is also very doubtful if the introduction of tetanus spores with the intravenous injections in a bulk of 2 or 3 pints would produce any harm. Pure tetanus cultures introduced into the blood are soon destroyed unless conditions favouring their multiplication are present (Kolle and Wassermann). The only factor which could possibly favour their multiplication is the presence of the chemical agent quinine itself and quinine in such extreme dilution would probably be unable to favour the development of tetanus bacilli.

Regarding the various salts of quinine it is of little consequence which salt is used so long as the importance of dilution is observed. The more soluble salts, bi-hydrochloride, lactate, etc., are generally used, but because of their great solubility, the warning regarding dilution must be emphasised.

McGilchrist, because it is usually stocked by all chemists and therefore easily obtained employs the bi-hydrochloride. This is an acid salt, and one further warning is necessary for those who

are employed in districts where black-water fever is prevalent. Acid salts of quinine are powerful hæmolytic agents, therefore in such districts the injection of acid salts should be done cautiously.

FLEA DESTRUCTION AS A PLAGUE MEASURE

THE following useful note by Lt.-Col D T Lane, M D I M S chief Plague Medical Officer in the Punjab is herewith published, as it will be useful to workers in other parts of India.

"Numerous experiments carried out in the Malaria Bureau, Lahore, prove beyond doubt that Cresol vapour is extremely poisonous to fleas. The vapour though very fatal to fleas is harmless to man and animals.

Two ounces of Cresol vapourized in a room with closed windows and doors kills the fleas in the room.

There are two methods of using the Cresol* vapour—

1st method—Kindle a small cow-dung fire, made of 4 or 5 dry cow-dung cakes, in a wide iron cup or *qumla* till it is well smouldering—not in flame. Place the iron cup or *qumla* containing the smouldering cow-dung fire in a room with the doors and windows closed and pour 2 ounces of Cresol on it and let it smoulder till completely burned. This takes place in about 2 hours.

2nd method—Close the doors and windows of the room, place an *angiti* containing a fire of any material, provided the fire is not in flame, in any convenient part of the room and put a cup containing 2 ounces of Cresol on the *angiti* and let it vapourize which it does in about an hour.

Either of these methods kills the fleas in the room. One has to be careful that the Cresol is vapourized and does not ignite. If Cresol is poured on a flaming fire it ignites and burns with a dense black smoke which is absolutely harmless to fleas. If poured on a smouldering cow-dung fire or put into a cup placed over an *angiti* there is no light but there is a greyish vapour which is extremely poisonous to fleas though not offensive or injurious to man or animals.

The cow-dung fire should be smouldering throughout but not red or in flame. The *angiti* should be burning fairly but not so much as to set fire to the Cresol in the cup. The most convenient way to proceed is to have the doors and windows in the houses closed. Then kindle the cow-dung fires or *angitis* outside the houses, and when they are ready have them taken into the houses and pour the Cresol on the smouldering cow-dung fires or place the cups containing the Cresol on the *angitis*.

The rooms should be kept closed till the vapour disappears which it does in 2 or 3 hours.

You can easily test your work at any time by putting fleas from dogs, rats or any animal into purses made of closely woven mosquito netting or gauze and placing them on the floor and inserting them into crevices in the walls and roofs.

Flea destruction should be used to supplement and not to replace any of our present plague preventive measures. It should be employed in combination with rat destruction (smoking, baiting, trapping) in the infected house and adjoining houses.

It is also most important that fleas should be destroyed in houses which have been evacuated before the people return to them.

Houses which have been evacuated frequently swarm with fleas, and it is very dangerous to enter them if the fleas have not been destroyed.

*The Cresol used is vapourized Cresol issued by the Medical Store Depot at Rs 18 per gallon.

It is an every-day occurrence for people to contract plague on re-entering houses they have evacuated. You should warn people who have evacuated their houses not to re-enter them till the fleas have been destroyed. Another matter, in connection with the prevention of plague, is that equal parts of kerosine oil and mustard oil smeared on the legs, arms and necks prevent fleas from biting, to a very great extent. The local application of these oils is harmless, they can be obtained in every village and the smell is not really very offensive. You should advise the people in infected villages to smear their legs, arms and necks with equal parts of kerosine and mustard oil 3 or 4 times a day. A little oil of citronella added to equal parts of kerosine and mustard oil removes the smell of kerosine oil and imparts to the mixture the smell of citronella oil."

THE NEW BRITISH PHARMACOPŒIA

THE new B P came into force on 1st January 1915. It has not however become circulated in India at the time of writing, but a preliminary notice will be useful to our readers.*

The changes consist of the addition of new drugs, omission of others and changes in strength of still more.

Tinctures—Many of these are changed in strength, for example, Aconite is double its former strength, Belladonna is reduced to two-thirds, Tinct Camphor Co is ten per cent stronger in opium, Nux Vomica is half the former strength, but the dose (5 to 15 m) remains the same, Digitalis is one-fifth weaker, Two Tinctures of Iodine are given. *Fortis* 10 per cent and *Mitis* 2.5 per cent, the latter being the same as the Tinct Iodi of the 1898 B P. Tinct Opium, or Laudanum is one-third stronger, Strophantus tincture is four times as strong, being 1 in 10 and the dose is 2 to 5 minims.

Emplast Belladonnæ is reduced to half its former strength, Oleate of Hg contains 20 per cent of yellow oxide, the hypodermic injections of Morphine and of Cocaine are both only half their former strength. Liq Hydrarg perchloride has now a strength of 1 in 1000 (instead of as formerly 1 in 875).

Aspirin, a German production, is to be called Acidum Acetyl-Salicylicum. Veronal disappears as "a thing devised by the enemy" and is replaced by Barbitonum (dose 5—10 grs). Chloralamide, the hypnotic, is called Chloral Formalidum, Cresol, the disinfectant, appears, Hexamine replaces Urotropine, Liquor Formaldehydi, Methyl Salicylas, Methyl Sulphonat (which replaces Trional), and a tannate of Pelletierine appear as new.

Among the Unguenta, Carbolic, Mercury, Ammoniated Mercury, Compound Mercury ointments all appear in reduced strength, while

Subchloride of Mercury ointment is doubled in strength.

We have mentioned enough of the changes in the new B P to show that it seriously merits study by the practitioner. The following admirable summary of the chief changes in the new B P is taken from the *Glasgow Medical Journal* (January, 1915) —

NOTABLE ALTERATIONS IN POTENCY

I—Stronger

| For internal use— | Dose | Comparison with 1898 B P |
|---------------------|---|---|
| *Tinct strophanth, | 2 to 5 minims, now four times stronger | |
| Tinct aconiti, | 2 to 5 " " | twice as strong |
| Acetum scillæ, | 5 to 15 " " | " |
| Acetum uiginæ, | 5 to 15 " " | " |
| Spt Juniperi, | 5 to 20 " " | " |
| †Tinct Opium, | { 5 to 15 min (repeated) now 20 to 30 " (single) " | { increased by one-third, and contains 1 per cent, morphine |
| Tinct camph co, | ½ to 1 fl diachm | increased by 10 per cent |
| Syrup chloral, | ½ to 1 " " | increased by 9 per cent, now 10.9 grains in 1 fl diachm |
| Syrup codon phosph, | ½ to 1 " " | increased by 9 per cent, now 0.27 grains in 1 fl diachm |

For external use—

Ung hydrarg subchlor, now twice as strong
Ung opii, increased by one third

N B—* The very great increase in strength of tinct strophanth

† Tinct opii now comes under Part I of the poison schedule, and all sales of it must be noted in the register of poisons

II—Weaker

| | Dose | Comparison with 1898 B P Now decreased by percentage | New proportion of active ingredient |
|---------------------------|------------------|--|-------------------------------------|
| For internal use— | | | |
| Tinct nucis vomicæ, | 5 to 15 minims | 50 | = 0.125 per cent |
| Tinct colchici, | 5 to 15 " " | 50 | |
| Inject cocain hypo derm | 5 to 10 " " | 50 | = 5.0 per cent |
| Inject morphin hypo derm, | 5 to 10 " " | 50 | = 2.5 " " |
| Pil phosphori, | 1 to 4 grains | 50 | = 1.0 " " |
| Trochis acid carbolic, | | 50 | = ½ grain in each |
| Acid nitric dil | 5 to 20 minims | 42.7 | = 10.0 per cent |
| Tinct belladon, | 5 to 15 minims | 30 | = 0.035 " " |
| Syrup ferri iodidi, | ½ to 1 fl diachm | 30 | |
| *Acid phosph dil, | 5 to 20 minims | 27.5 | = 10.0 per cent |
| *Acid sulph dil, | 5 to 20 " " | 26.7 | = 10.0 " " |
| Tablet trinitrin, | 1 to 2 tablets | 23 | = 1½ grain in each |
| Liquor potassæ, | 10 to 30 minims | 19.2 | = 5.0 per cent |
| Liquor hydrarg perchlor, | ½ to 1 fl diachm | 12.3 | = 1 in 1,000 |
| Tinct opii ammon, | ½ to 1 " " | 10 | |
| For external use— | | | |
| Emplast belladon, | | 50 | = 0.25 per cent |
| Ung hydrarg ammon, | | 50 | |
| Lan hydrargyli, | | 40 | |
| Ung hydrargyli, | | 48 | |
| Ung hydrarg co, | | 38 | |
| Ung acid carbolic, | | 25 | = 3.0 per cent |

[* H Weppell Gadd's well known "Synopsis of the B P" in its new 8th edition, gives a very complete analysis and summary of the new B P (price 1s)—Ed, I M G]

* All the dilute acids except hydrocyanic and nitro hydrochloric now contain 10 per cent. of the respective acids.

NOTABLE CHANGES IN NAME

| Old Name, 1898 | New Name, 1914 |
|--|---|
| Acet cantharidis, | Acet cantharidin |
| Emplast cantharidis, | Emplast cantharidin |
| Ext aloes barb, | Ext aloes |
| Ext belladon alc | Ext belladon siccum |
| Ext cascar sagrad, | Ext cascar sagrad siccum |
| Ext euonymi sic, | Ext euonymi |
| Ext hyoseyami vinid | Ext hyoseyami |
| Ext nucis vomice, | Ext nucis vomice siccum |
| Ext opii, | Ext opii siccum |
| Ferrum tataratum, | Ferr et potassii tartias |
| Ferru phosphas, | Ferru phosphas saccharatus (slightly stronger) |
| Hydriagyri oleas, | Hydriagrum oleatum |
| Liq iodi fort, | Tinct iodi fort |
| Liq magnes carb, | Liq magnes bicarb |
| Oleum gynocardiæ, | Oleum chaulmoogriæ |
| Oleum pini, | Oleum abietis |
| Pil aloes barb, | Pil aloes |
| Pil aloes socot, | |
| Syrup codem, | Syrup codein phosph |
| Tinct colchici sem, | Tinct colchici |
| Tinct iodi, | Tinct iodi mitis |
| Troch eucalypti gummi, | Troch kino eucalypt |
| Ung cantharidis, | Ung cantharidin |
| Ung glycerin plumb subacet, | Ung plumb subacet |
| Ung gynocardiæ, | Ung chaulmoogriæ |
| Barbadoes and socotrine aloes are included in the name "Aloes" | |
| Alum and borax have "purificatum" added after | |
| Turpentine has "rectificatum" added | |

SOME DRUGS NEWLY ADDED

Acetonum, used as a solvent of cantharidin
 Acidum acetylsalicylicum = "aspirin", &c
 Acidum hydriodicum dilutum = 10 per cent of hydriodic acid
 —syrup acid hydriodic, contains 10 per cent of the dilute acid
 Acidum picricum, purity not less than 99 per cent
 Adrenalum = active principle of suprarenal glands
 —liq adrenalini hydrochlor = 1 in 1,000 in normal saline with $\frac{1}{2}$ per cent CHCl_3
 Barbitonum = malourea B P C = "veronal", &c
 Benzaminæ lactas = betacaine B P C = beta-eucaine
 Calciu lactas
 Cantharidinum = active principle of cantharides, which it replaces
 Chloral formamidum = chloral-amide
 Cresol
 —liq cresol saponatus = a soluble preparation containing 50 per cent cresol
 Diamorphinæ hydrochlorium = acetomorph hydrach
 B P C-heroin hydroch
 Ethyl chloridum, purity not less than 99.5 per cent
 Glucosum = glucose = syrupy commercial product
 Guaiacol = colourless liquid, from creosote or synthetic
 Guaiacol carbonas = solid
 Hexamina = formamina B P C = hexamethylenetetramine
 Injectio strychninæ hypodermica, contains $\frac{1}{2}$ per cent of the hydrochloride
 Liquor formaldehydi = 36 to 38 per cent solution
 —liq formaldehydi saponatus, contains 20 per cent of the solution of formaldehyde with 40 per cent soft soap, 30 per cent alcohol (90 per cent), and water
 Methyl salicylas = oil of gaultheria natural or artificial, purity not less than 98 per cent
 Methyl sulphonal = "trional"
 Pelletierinæ tannas = a mixture of the tannates of the alkaloids of pomegranate bark
 Phenolphthaleinum = "purgin", "laxoin", &c

Resorcium

Sennæ fructus = senna pods
 Sevum benzatium = benzoated suet, for use in warm climates in place of benzoated lard
 Sodii phosphas acidus = acid phosphate of soda
 Stomati bromidum
 Theobromine et sodii salicylas = "dinetin"
 Unguentum lanæ compositum = compound wool fat ointment, a mixture of wool fat, hard and soft paraffins, and beeswax

The only glandular substances included are pepsin, pancreatic solution, dry thyroid and adienalin. No serums or vaccines are included

SOME OMISSIONS

Cantharides, coca, jaborandi (the active principles of these are retained)

Arnica, bismuth oxide, cerium oxalate, cnicifuga, concentrated liquors, cusparia, galbānum, gamboge, hemlock, hops, iodide of sulphur, iron arsenate and the solutions of the penitrate and acetate of iron, lead carbonate, mezereon, parina, picotoxine, saissafilla, silver oxide, sulpho-carbolates of sodium and zinc and others

THE B M A BRANCH IN CEYLON

THE July-December number of the Journal of the B M A, Ceylon Branch, as usual has many papers of interest. Dr V. Vaithalingam, of Nuwara-Eliya has a valuable article on salvarsan treatment at Kolonna, 112 cases were treated of which 91 were for yaws (*parangi*). Changes in the condition of ulcers were noticed on the third or fourth day.

"The response of all the cases of *parangi* and *sypilis* to the treatment was prompt and quick, and the action rapid, none the less, radical, the process of repair and progress of healing afforded us ample testimony, and sufficient scope to judge of and justify the efficacy of the drug, and to count upon the cures effected so far as complete and successful. The ulcers had thoroughly healed up by the time the patients were discharged, the only traces left of them were scars on some of the advanced and deep-rooted cases, which too were being partially obliterated, then bleached appearance had gone away to a great extent, on the other hand, as regards the chronic cases riddled with intractable bone lesions, the deformities and abnormalities acquired did persist in spite of three or four injections and careful attention.

As regards the *other cases* swellings of joints went down to an appreciable extent though not completely. Fleeting pains of long bones vanished, nodes waned down to a great extent in course of time, chronic ophthalmia gradually resolved more or less to its normal condition. The two patients suffering from neurasthenia were more or less restored, they looked sprightly and lively as if imbued with fresh vigour. The carbuncle ulcer healed up remarkably well and rapidly, urine was tested off and on for sugar, which was found ultimately to have disappeared. This patient was much improved physically too, the skin lost its dry and scaly nature, and all other symptoms subsided gradually.

Apart from the clinical point of view, the well marked and characteristic features noticed in all the cases treated with 606 were (1) rapid growth and development physically, (2) change of complexion (i.e., a fair brown colour being imparted to the system instead).

The patients on 606 treatment did not go through any other course of treatment for their troubles during the period, either internally or externally. I had also

occasion to inspect several of the patients taken at the outset and could not have found in them any vestige of the disease except scars which too seemed to have undergone partial obliteration, and then statements also implied no indication of recrudescence of the disease"

Dr A Castellani, now of Naples, writes of other treatments for yaws, as the supply of salvarsan, 'made in Germany,' is limited owing to the war. He refers to the use of tartar emetic, potassium iodide, salicylate of soda and a combination of tartar emetic, potassium iodide, sodium salicylate and sodium bicarbonate an inelegant but useful mixture.

Dr E C Spaar reports a case of prolonged fever due to *B. Columbeuse* (Castell). Dr B D Jilla writes of guinea-worm in Ceylon but only refers to the old treatment of winding out the worm on a match.

Castellani reports a case of triple infection by typhoid, paratyphoid A and paratyphoid B, and also gives an account of a vibrio four cases of what he calls *paracholera*. Dr S C Paul gives some good cases of gall-bladder trouble and stones treated surgically.

CHAULMOOGRA OIL TREATMENT OF LEPROSY

Dr V G HEISER, in a long and well illustrated article in the *American Journal of Tropical Diseases* (New Orleans, November 1914, p 320, &c) gives an account of his successful use of chaulmoogra oil in numerous cases of leprosy. The oil is best given hypodermically, it causes nausea and prolonged use of it is intolerable on this account if given by the mouth or in capsules, etc. Dr Heiser gave the following mixture — Chaulmoogra oil 60 c c, camphorated oil 60 c c, and resorcin grams four (Mix and dissolve by heat on a waterbath and then filter). The mixture must be continued hypodermically over several months. The injections are made at weekly intervals in ascending doses, beginning with 1 c c "which is increased to the point of tolerance".

Marked reaction sometimes occurs, with fever and some cardiac distress. Direct injections into the large leprous deposits or by a number of smaller injections into smaller infiltrations may be successfully tried. Strychnine need not be used, saline purgatives are freely employed and 2 per cent a hot sodium bicarbonate baths daily.

The same writer points out how common is the association of scabies and leprosy.

BLOOD OF NORTHERN CHILDREN IN THE TROPICS

THE *Annals of Tropical Medicine* (Vol 8 No 3) contain two articles by Drs Briehl and Priestley working in the Australian Institute of Tropical Medicine, Townsville, on the changes in the blood observed in children living in tropical Queensland. They conclude —

1 That the number of polymorphonuclear neutrophile leucocytes in the blood of children living in tropical Queensland is distinctly decreased and the number of eosinophile leucocytes markedly increased.

2 The Arneth count performed on 150 school children in tropical Queensland shows a marked shift to the left the Arneth index being 74.5 compared with 40 for normal individuals in Europe.

3 The shift to the left in the Arneth blood picture is due to the effect of a tropical climate upon the white race living in the tropics.

4 Careful blood examinations were performed on 574 school children in Townsville, of European descent, of ages between 7 and 15, of whom the majority had been born and had resided in tropical Queensland during their whole lives. The results indicate —

(a) that the average number of red blood corpuscles is not diminished when compared with analogous figures for children born and bred in a temperate climate,

(b) that the average hæmoglobin content of the blood is normal,

(c) that the number of leucocytes is slightly increased,

(d) That the average blood pressure does not show any difference from that of normal children in temperate climates.

DR EASTWOOD and F Griffith (*Journal of Hygiene*, November, 1914) report on the investigation into the prevalence of rat plague in East Anglia, i.e., in certain rural and urban areas around Ipswich.

As a result of this enquiry 27 farms or other premises were found to harbour plague-infected rats. No plague-infected rats were found outside the areas already notified. It is added that rat destruction maintained by local enterprise has resulted in an appreciable reduction in the rats population.

DR KEDAR NATH DAS has undertaken to write a collective report on the treatment of puerperal infections and the results of operations for retrodisplacements of the uterus. Intending contributors are invited to communicate with Dr Das, at the Campbell Medical School, Sealdah, Calcutta.

DR W ROBERTSON (in *Transactions of Society of Tropical Medicine and Hygiene*, Nov, p 40) calls attention to the value of Thymo Benzol in case of Biharzia infection, "all urethral, vesical and methral pains disappear, hæmorrhage ceases and in 2 or 3 days after one diachm doses of benzol (pur) the oia come off, mostly stained black but all dead. The detritus disappears and the exudation in the urine disappears or becomes a thin

haze" He prefers to give three grains of thymol in half an oz of benzol every four hours and has observed "no poisonous symptoms."

WITH the approval of the Most Hon'ble the Secretary of State for India, the following rates of staff salary, which will be admissible in addition to grade pay, have been sanctioned for officers of the I M S officiating as Superintendents of Central Lunatic Asylums

| | Rs |
|--|-----|
| Lieutenant and Captain of under 5 years' service | 225 |
| Captain of 5 years' service and over | 250 |
| Majors | 275 |

At a meeting of the Kathiawar Medical Society held at Rajkot on the 12th December 1914, presided by Major A. Hooton, I M S, 20 members from various parts of the province were present. It was the annual meeting and so a new committee was elected. Dr N. K. Kalyanvala, L M & S, was elected as the President. Four clinical papers, viz, interesting points of a few cases of typhoid fever by Dr R. R. Baxi, L R C P & S, a case of post-diphtheritic paralysis by Dr Anklesharia, B Sc, L M & S, a case of diabetes insipidus by Sub-Assistant Surgeon K. J. Tana and the use of eserine and atropine in eye practice by Assistant Surgeon P. T. Kothari, were read.

Dr Baxi had a case where 2 relapses followed administration of solid food after temperature was normal for one week. It is interesting to note from Dr Anklesharia's paper that 16 cases of diphtheria were treated by him lately, 13 out of which occurred in one family. Mr Tana's case of diabetes insipidus used to pass 500 ounces of urine which came down to 230 ounces after administration of liquid extract of ergot.

THE January and February issues of *The Practitioner* are very valuable. They contain some twenty articles on *The Internal Secretions*, which admirably sum up our existing knowledge of this fascinating subject. One article is by Major R. McCarrison, F R C P, I M S, on endemic goitre and is a most complete and valuable résumé of the subject.

DR DIXON of Pennsylvania has pointed out (see *Lancet*, p 1102, Nov 7th, 1915) that the common duck is an excellent destroyer of mosquito larvae. In Gambia fish were tried in the wells with good results, but ducks can well be used in ponds and lakes, and in what in India we call "tanks."

Reviews.

The Medical Who's Who, 1915.

WE have received a copy of the Medical Who's Who* which is compiled on the well-known lines of that invaluable annual and record of men of the time Who's Who.

The 1915 edition of the Medical Who's Who contains 1,000 pages or more than three times as many as the 1912 edition.

We regret that still so many medical men's names are missing from this otherwise very useful volume. The fault is their own. Every practitioner on the Medical Register got a form to fill in and it is a pity more did not. As pointed out in the B M J of 6th November 1912 there is no attempt to make any sort of a select list. It therefore behoves medical men to support the work and thereby render it useful as a work of reference.

Lead Poisoning—By Sir THOMAS OLIVER, M. D., London, H. K. Lewis, Cl. 8vo Price 5s net.

THIS book consists of a series of lectures delivered by Sir Thomas Oliver at the Royal Institute of Public Health and is invaluable to all who have to deal with men employed in the various lead industries. No metal is more widely used in the arts and manufactures, and though there will always be risks in all trades which deal with lead or its compound yet this book shows not only what has been done by legislation and home office inspection but what still remains to be done to make these trades less injurious to employees.

The various lectures deal in a thorough way with lead and leadless paints and poisoning among painters, with the use of lead in potteries, printing, type founding. The symptoms are well and clearly detailed. The effects of the use of water contaminated by lead are described and a great portion of the book is taken up with preventive as well as curative treatment. The appendix contains copies of factory and workshop orders.

Lead poisoning is a subject still of minor importance in India, but all interested in the subject will do well to consult this useful little volume.

Gonorrhoea and its complications in the Male and Female—By DAVID WATSON, M B, C M, Surgeon, Glasgow Dock Hospital. P 367. London: Henry Kingston, 1914. Price 15s net.

THE subject with which this book deals is one which undoubtedly does not receive the amount of attention in the medical curriculum

which its importance entitles it to. Gonorrhœa is one of the common ailments, its immediate and remote effects in many cases are of serious import, yet we think we are correct in stating that in most London hospitals these cases are relegated to the large group of minor surgical cases which are dealt with by the house surgeons and are rarely utilised as teaching material by the visiting staff. The consequence is that the majority of students embark on practice equipped with a very meagre knowledge of the treatment of the disease, and naturally they frequently fail to cure their patients, who, after going from doctor to doctor and spending much money on proprietary remedies eventually becomes chronic "carriers" of the gonococcus and a source of danger to the community. The author's remarks on p. 82 on the reasons for the popularity of the internal treatment of gonorrhœa are very much to the point.

The work under review is a concise and well-written account of the modern methods of examination and treatments of gonorrhœa and its complications acute and chronic. The author's preference is in favour of treatment by the "grand lavage" method of Janet, the only drawback to which is the fact that it is difficult to carry out in the ordinary consulting room, the mess involved being such that a special room equipped on hospital lines is necessary. This renders the method impracticable for most general practitioners, who must perforce fall back on the ordinary injection method. For this the newer organic silver compounds now available are fully discussed.

The account of chronic urethritis and the technique of urethroscopy are good, but we regret that more space is not devoted to illustrated descriptions of the lesions visible through the urethroscope and their treatment.

The account given is scrappy and would not be found sufficient by one who wished to master the technique of the instruments unaided by instructions from an expert.

The method of treatment in females by lactic acid advocated by the author is based on sound principles and appears in his hands to have given remarkably good results.

The complications of gonorrhœa are dealt with separately concisely but adequately, and then follow the systemic infections. The review of vaccine therapy represents merely the author's own views and contains no directions whatever for carrying out treatment by this method.

The copy which we received for review was spoiled by the fact that pages 65—80 were missing, instead of them a duplicate set of pages 81—96 was bound in. The missing pages contain a description of acute posterior urethritis, of Thompson's separate glass test and much other useful matter. Such carelessness on the

part of the publishers is likely to prejudice the sale of a useful book.

Obiter Scripta—Throat, Nose and Ear—By A. R. FRIEL, M.A., M.D., Hon. Physician for the Throat, Nose and Ear, General Hospital, Johannesburg. Pp. 37. 1914. Bristol: John Wright & Sons, Ltd. Price 2s 6d net.

THIS brochure consists of three chapters. The first is a collection of miscellaneous notes on position during operations for removal of tonsils and adenoids, points in the technique of submucous resection of the septum, hysterical aphonia and other unrelated subjects, thrown together seemingly at random. The second chapter deals with zinc ionization of the ear and nasal sinuses and the third with the bacteriology of ozoena and its treatment by intravenous injection of living sensitized Friedländer bacilli combined with ionization of the ethmoid cells. No details of cases treated by these methods are given.

Diseases of the Heart—By JOHN COWAN, M.D., F.R.C.P.S., pp. 438. Coloured plates 3. Published by Edward Arnold.

A BOOK in which cardiac disease is considered from the modern standpoint and with the aid of all modern methods, while at the same time the work of those great cardiac investigators who added so much to our knowledge in the last century are not overlooked.

The book is a thoroughly good one, profusely illustrated, and by a mere perusal of the chapter headings it shows partly how much our knowledge of the subject has advanced of late years. There has been little added to our information on organic disease of the heart during this period, except a knowledge of the manner in which its physical signs may be modified by variations in motility, indeed in some instances it would seem that insufficient stress is laid on useful observations of the past. It is a pity, for example, that Broadbent's clinical division of mitral stenosis into 3 stages is not preserved. It is shown in this volume that the superintention of auricular fibrillation is one of the secrets, the solving of which has aided the explanation of the changes which occur from time to time in the physical signs of this disease. The book contains a chapter by A. J. Ballantyne on "The Ocular Manifestations in Arterio-Sclerosis" and one by W. T. Ritchie on "The Electric Cardiogram." The book is thoroughly excellent and cannot but be a standard book.

Clinical Medicine—By WILLIAM HANNA THOMSON, M.D., LL.D. Published by W. B. Saunders Co.

THIS is a curiously uneven book. For example under hydrophobia, there is no reference to any possibility of prophylactic treatment in the incubation period as instituted by Pasteur, and amplified in India. The treatment of cholera

is very poor and the same can be said about leprosy—concerning ankylostomiasis, the attitude is the American one, namely that there is only one specific drug and that is thymol. The consideration of thyroid diseases on the other hand is among those which are excellent, and the book opens with good chapters on the significance of common but important symptoms. When considering drug habits the writer takes us far into and beyond psychology. The book is written in an easy and familiar style and contains a great deal which is very interesting and instructive.

Chronic Colitis, its Causation, Diagnosis and Treatment—By GEORGE HERSHELL and ADOLPHE ABRAHAM. Published by Longmans & Co.

It is a matter of satisfaction that there is, at last, a manual in the English language on this clinical entity, which is apt to give so much trouble to the practitioner, not only in the treatment of the local condition, but in that of the other systems implicated in the syndrome.

The disease is considered under five types, and the diagnosis from every standpoint. More than half the book is occupied by the pages devoted to treatment. This part is extremely full and reasonable, being dealt with under eight headings. The book can be confidently recommended.

The Biology of the Blood-Cells—By O. C. GRUNER. John Wright & Sons, Ltd. 1913. Price 21s net.

THIS is a most comprehensive and beautifully illustrated work of almost 400 large pages in which the life-history of the different red and white corpuscles of the blood is traced from their origin to their decadence. This difficult subject is lucidly dealt with, including histological studies of the tissues concerned in the development and destruction of the blood-cells. The first 126 pages are devoted to the red cell and the remainder to a very full consideration of the great varieties of white corpuscles. Six coloured plates figure over one hundred varieties of blood-cells, showing how complicated the subject is while numerous uncoloured histological plates are included. Useful references to the literature are given, as well as an extensive glossary of hæmatological terms and a good index complete a valuable work.

Embolism and Thrombosis of the Mesenteric Vessels—By LESLIE B. C. TROTTER. Cambridge University Press.

THIS is a small work written as a thesis for the Cambridge M.D., for which the writer had diligently collected about 360 cases chiefly in adult males, mostly affecting the superior mesenteric artery and due to embolism, as a rule secondary to endocarditis. The most striking features are sudden onset, acute abdominal pain,

vomiting and diarrhoea not uncommonly of blood. Operation with resection is the only means likely to be successful and in cases in which it was undertaken 36.3 per cent of recoveries were obtained. The thesis is one of considerable interest and worthy of careful perusal.

Practical Prescribing—By ARTHUR H. PRIOR. London: Oxford Medical Publications.

THIS is an eminently practical book on a subject rather apt to be neglected in these days of laboratory work. The writer's object has been to supply a number of prescriptions and to explain them by giving reasons for their employment and explaining the various constituents and their actions.

It is not easy to show our readers how very useful and practical this book is. It must prove invaluable to students and to many practitioners and we can strongly recommend it.

Text-Book of Military Hygiene—By FRANK R. KEEPER, Lt. Col., Med Corps, U.S.A. W. B. Saunders & Co. 1914.

MILITARY hygiene is merely hygiene applied to an army and covers the consideration of everything that may unfavourably affect the physical conditions of individuals in such a community not only under peace conditions but in conditions incident to the march, camp and battle.

The "occurrence of 30,000 cases of cholera in one day"—that, more than the Turkish resistance, kept the victorious Bulgarians out of Constantinople a couple of years ago.

This book by Lt.-Col. Keeper is admirable and will be welcomed at the present time and will be of the more interest because it refers to the United States Army rather than any European one. The chapters on recruiting, training, preventable disease, clothing, boots, equipment, water-supply, foods, sanitation of posts and camps, marches, battlefields are all good and practical. The remarks on disposal of excreta are good and there is an interesting chapter on tropical and arctic service. We note that American soldiers are said to experience a loss of memory, and energy and become morose and irritable after the "prolonged" exposure of one year and upwards to tropical heat, &c. We know this neurasthenic condition in India, but it is seldom seen except after 5 or 6 years' service in the plains of India without leave. We can strongly recommend the book.

Public Health Laboratory Work—By KENWOOD. Sixth Edition. Messrs H. K. Lewis & Co. Price 10/.

A NEW edition of this well-known manual which is so deservedly popular with students of public health is notable for the addition of a new chapter on the analysis of sewage effluents.

This important addition was made necessary by the findings of the Royal Commission in sewage disposal as published in the eighth report

Several illustrations of apparatus have been added. The book is now very complete and up to date and will continue to hold its place as the most useful book for the laboratory work for the D P H

The Ileo Cæcal Valve—By Dr A H RUTHERFORD

THIS little book is the amplification of a thesis for the Edinburgh M D by Dr Rutherford of Sydney. The ileo-cæcal valve is the orifice between the small and large intestines.

The book describes the valve most thoroughly and minutely and shows its competence as a valve and that its function is that of a sphincter similar to the pylorus and the internal anal sphincter to regulate the flow of faeces through and to prevent regurgitation. The book is extremely well illustrated.

Rose and Carless' Surgery—Ninth Edition
London, 1914. Baillière, Tindall & Cox. Cash price 21s

To praise a work of such proved utility as Carless' *Surgery* is quite unnecessary. The 9th Edition is before us, new editions being called for about every three years since 1898.

The steady progress of Surgery is reflected in the new edition, and the aim of the book "to instruct students and to help practitioners" is well kept in mind. Modern methods, such as use of radium and salvarsan or the treatment by heat, light, electricity are described.

As before the use of heavy type to mark the paragraphs and the admirable and numerous illustrations render this the most successful and satisfactory of books on Surgery for the student and for the practitioner.

Practical Sanitary Science.—By DAVID SOMMERVILLE, M D. London, 1914. Baillière Tindall & Cox. Demy 8vo, pp viii + 328, 77 illustrations. Price 10s 6d net.

THIS is the second edition of what has proved to be a useful handbook for the Laboratory. It embodies Dr Somerville's lectures at King's College and is admirably adapted for the use of medical men working a Laboratory course for the D P H.

The usual subjects are treated: water, sewage, soil, and food-stuff (a good practical chapter) and disinfectants; the latter is very useful and the need for strictly observing the conditions of such tests as that for the 'Rideal-Walker Co-efficient' is emphasised. The appendix describes several useful tests.

The book deserves its 2nd Edition and will be found very suitable for men working for that most useful diploma the D P H.

The Dispensary Assistant's Manual in Bengali—By RAI HORINATH GHOSH BAHADUR, M D. "Dhanwantari" Press, Calcutta. Price Rs 3 8.

THIS is a useful book 'designed for the use of the Compounder Surgical Assistant or Dresser. The first part now before us deals with materia medica, pharmacy, compounding "pharmacopœial preparations," incompatibility of drugs and practical compounding and also of poisoning by drugs.

The book is sure to be useful and can be certainly commended for the use of those for whom it has been written.

Advice to Mothers, and Infantile Diseases—By Capt M A KUREISHI, M S. Lahore, 1914. Society for Promoting Scientific Knowledge. Price Re 1-8.

THIS useful manual is written in Urdu and for a translation of parts of it, we are indebted to Babu J N Roy Bose, reader of the Alipore Jail Press.

The book consists of 22 chapters and deals with every subject connected with the bringing up of infant, food, clothing, bathing, circumcision, milk, simpler diseases, serious diseases, medicines, their use and preparation.

We quote the following from the preface—

"Although the medical science of this country—Unani or Shastrī—is an object of much praise yet at the present time the men who advertise themselves do only increase their own ease and respect and also fill their pockets, and the general public get little or no benefit out of it but trouble and loss. I do not like to discuss and expose the merits of this system of medicine and its professors but I cannot help saying this much that the object of both the Indian and European medical science is that a sick man may be cured of his sickness, and this is possible only in the case where the physician is able to make proper diagnosis of the nature of the disease and also to know what part and what organ of the body is diseased. Moreover along with the knowledge of the science experience is required to know that for such and such diseases such and such medicine and treatment are useful and what is the best medicine which will produce effect in such a short time as will not only cure the disease but will also prevent the growth of any other affliction owing to the disease. Now about the diagnosis of the diseases—according to the European system special symptoms of special diseases are stated in their proper place. The use of the microscope has attained to such perfection as a mistake in the diagnosis of diseases has been almost impossible. Besides this, there are other ways by which spit, saliva, sweat, blood, pus, etc. may be examined and the condition of the disease may be disclosed to the fullest extent."

Capt Kureishi has compiled a most useful book which we hope will have a wide circulation.

Surgery, its Principles and Practice.

By ASHBY PASTON COOPER ASHHURST, M.D. 7 Coloured Plates and 1,032 Illustrations Price 28s net. London H. Kempton, 1914

THIS is a valuable text-book of surgery equally useful to the practitioner and to the student. The author Dr Ashhurst is a teacher in surgery in the Pennsylvania University. The book is very clearly printed and very fully illustrated.

It lays special stress on pathogenesis, diagnosis and treatment, most of the important operations are described in detail, but special subjects like the eye, ear and nose are omitted and gynaecology is dealt with only as it affects the general surgeon. We have read many of the chapters and have been impressed with the clear and accurate teaching given. The book is a good one and can be recommended.

Catechism Series—Medicine, Botany Edinburgh E and S Livingstone Price 11s net each

WE have received copies of the second revised and enlarged edition of these useful little summaries. As is well known these little books are in the form of question and answer. In older days students used to make similar summaries from text-books in their own note-books, but this catechism series presents the student with such summaries ready made and with an accuracy beyond that probable in a student's effort.

As long as these books are not used instead of text-books, but merely to refresh the memory and to "run through" a subject in view of an immediate examination they are good and useful and we know of none better than those in Livingstone's "Catechism Series."

A Synopsis of Pharmacology and Therapeutics—By R. BHATTACHARJI, B.Sc., Calcutta, 1914 H. Mukerji & Co. Price, Re 14 and Rs 2

THIS is a useful and well compiled crambook on Pharmacology and Therapeutics. It is not intended to take the place of current text-books which are stated to be "exhausting to a degree." The portion devoted to ordinary drugs is ably and concisely abstracted, but why is there no notice of the use of the now fashionable emetin in amoebic dysentery, &c. The chapter (XXXI) on animal drugs and antitoxins, &c., is the weakest part of the book.

On the whole the book is a good one and when wisely used will prove most useful to students.

Renal Diagnosis in Medicine and Surgery.

By Dr. VICTOR BLUM. English translation by WILFRED B. CHRISTOPHERSON (Butterworth & Co.)

THIS little book is a plea for the substitution of physiological diagnosis for a diagnosis based on empirical rules.

It is divided into five sections—

Section A deals with the modern physiology of the renal function in a clear and concise manner.

Section B deals with renal competency and incompetency as determined by the old methods

of clinical diagnosis and the value of the different symptoms in a topical renal diagnosis.

Section C gives an account of the methods of functional renal diagnosis and discusses concisely the value of the different methods past and present. But, it is a pity that the author has not given more definite directions for carrying out the various tests which he recommends.

Section D deals with the attempt at a topical diagnosis by means of functional tests, and contains an excellent schematic representation of the topical physiology and pathology of the renal function which should prove most useful to the clinician.

Section E gives a very convincing account of the significance of functional diagnosis with records of illustrative cases.

Many of the tests are beyond the reach of the ordinary practitioner and can only be satisfactorily carried out in a well equipped laboratory by an expert. The book nevertheless marks a distinct advance on the old methods of renal diagnosis and should be carefully read by all interested in the subject and anxious to free medical science from the tyranny of empiricism.

A Text-Book of Physiology—By WILLIAM H. HOWELL, F.D., M.D., Sc.D., LL.D. Fifth Edition, 1913 (W. B. Saunders & Co.)

WE cannot speak too highly of the latest edition of this well-known book which fully justifies the author's hope that "the present edition has not overlooked any significant advance in the subject of physiology during the past two years."

The book now comprises 1000 pages as compared with 998 in the 1911 edition, so, that the author can be congratulated on keeping the size of the book within reasonable limits while revising and bringing it thoroughly up to date.

The section on metabolism has been more or less completely rewritten in the light of recent discoveries, more especially in our knowledge of the details of intermediary metabolism in the body and of the specific functions of the different proteins in growth and in maintenance.

The present edition is probably the most lucid and complete summary in existence of the present state of our knowledge of physiology—useful alike to the student and the physician.

Surgery of the Vascular System—By BERTRAM E. BERNHEIM. Pp 104. Illustrations 53. J. B. Lippincott Company, Philadelphia and London. Price 12s 6d net.

THIS fascinating branch of Surgery is shortly and admirably described in this book.

The first chapter discusses the general technique, it is short and to the point.

The second deals with transfusion, a number of instruments are described, Cile's, Elsberg's, and one of the author's which, ingenious as the other's are, appears to possess several advantages. The author agrees with Elsberg that it is preferable to cuff the artery rather than the vein. The

description of the operation is admirably clear and is aided by the illustrations which are particularly good and form a marked feature of the book. The author is of opinion that the danger of hæmolysis after transfusion is exaggerated, it has never come within his personal experience.

Other chapters are concerned with end to end suture, lateral anastomosis and the transplantation of the segment of a vein. Lateral anastomosis is preferred to the end to end method for reversal of the circulation.

A short chapter on varicose veins follows. We are glad to see that the procedure of saphenofemoral anastomosis for this condition is condemned and entirely agree with the author's views.

The surgery of the heart is also dealt with and aneurisms. The latter subject has some carefully compiled statistics added.

The book can be thoroughly recommended to those requiring a concise account of this subject. The list of references has been carefully compiled.

SPECIAL ARTICLE

GUINEAWORM DISEASE IN INDIA

DR. TURKHUDD (M B, Ed) has continued his valuable work on the distribution and prevalence of this parasitic infection in India. We must quote in full the results of Dr. Turkhud's inquiries as given in the Bombay Bacteriological Report just received.

For the purpose of collecting medical statistics, and also for the tabulation of meteorological data for the medical department, the whole of India has been divided into 11 geographical groups which are so arranged as to represent areas which are fairly homogenous so far as the chief prevailing diseases and climatic conditions are concerned.

The division in which dracontiasis is most prevalent among native troops is South-Eastern Rajputana, Central India, and Gujarat. Here the disease prevails to the extent of 18 cases per mille of the average strength per annum. A ratio of 13.4 per mille is found in Gujarat. The other divisions where the disease prevails are —

| Deccan Proper, | ratio | 7.1 | per mille of average strength |
|---------------------|-------|------|-------------------------------|
| Western Coast, | , | 5.72 | do |
| Gangetic Plain, | „ | 5.5 | do |
| Upper Sub-Himalaya, | „ | 5.22 | do |
| Sind, | „ | 5.12 | do |

While in these divisions the disease is common, all the hill stations appear to be free from it except those situated in the North-West Frontier Province. Inland Burma also appears to be free from the disease.

The incidence among prisoners in jails probably more accurately represents the prevalence of the disease in the various parts of India, for the majority of prisoners live under normal Indian conditions in the same districts in which the jails are situated in which they are confined. Judged by the incidence of the disease among prisoners, the western part of the Madras Presidency is the most afflicted area (39.64 of average annual strength per mille). The division which in intensity of infection follows the western portion of the Madras Presidency is the Deccan with the very high ratio of 28.10 per mille of average annual strength. The other localities where dracontiasis is common are —

| | | | |
|---|-------|-------|-----------|
| The Northern Circars, | ratio | 12.09 | per mille |
| Madras and Carnatic, | „ | 11.86 | do |
| Gujarat and Kathiawar, | „ | 10.66 | do |
| The Western Coast, | „ | 10.53 | do |
| The Indus Valley and North-Western Rajputana, | „ | 10.11 | do |

The Hill Stations, Burma (Inland and Coast), and the Andamans are all free from the disease.

The high ratio among the sepoy's stationed in a locality showing a low ratio among the prisoners may perhaps be explained on the ground that the sepoy's contracted infection in their native villages while on leave or before their transfer to the stations in which they were reported to be sick with the disease. Again a low ratio among the troops in the localities where the disease is prevalent among the prisoners may be attributed to the superior sanitary surroundings in which the sepoy's dwell.

Some interesting observations were made in the village of Sarsola near Thana on the incidence of guineaworm disease by Major Glen Liston, I M S, and Dr. Turkhud, M B, C M (Edin). With the assistance of Mr. Bhawe, a graduate in science, and an influential Indian gentleman residing near the village, a census of the inhabitants was taken. It was found that 10.78 per cent of the villagers had suffered during the current year from the disease and that approximately 39 per cent of the villagers had at one time or another suffered from the disease. Of the whole population the males were affected in the proportion of 43 per cent, while 26 per cent of females suffered. The source of the disease was traced to an old well belonging to the villagers. The well contained numerous cyclops, of which 38.6 per cent harboured young guineaworms, as ascertained at the first examination. Although instruction was given to the villagers regarding the precautions which ought to be taken to avoid the disease, and attempts were made by Mr. Bhawe to assist them in securing a pure drinking water supply, owing to the suspicion and indifference of the population no attempt to adopt remedial measures had been taken several months later when their village was re-visited.

In addition to the visits paid to Sarsola, excursions were made to Kadav and Takve in Kolaba district, Yeola and adjoining villages in Nasik district, and Shetbunder (Elephanta). In these villages guineaworm disease is very common, and our observations made at these places confirmed our views that ignorance, indifference, and prejudice on the part of the people are the chief causes which favour the spread of the disease. The parapets of wells are allowed to remain in a state of disrepair so that surface water, after being fouled by bathing and washing operations which are promiscuously carried on near village wells, easily finds its way back into the wells. It is a common sight to see the village wells, the water of which should be scrupulously guarded against contamination, being utilised as swimming ponds, and where a well is provided with steps, to see people washing themselves in the well water. It seems likely that although this disease is one of the most easily prevented of all diseases, we know little progress will be made in eradicating it from the country till the people of themselves demand a higher standard in the purity of their drinking water, so long as they are content to drink water which has been used for bathing purposes the disease is likely to prevail.

TRANSMISSION EXPERIMENTS

Experiments made on monkeys in the laboratory to ascertain the mode of transmission of the disease gave the following result. Two series of experiments were carried out. In the first series various methods were employed for bringing about infection. Thirteen monkeys were used, some of them were fed by the mouth

on infected cyclops and some with living guineaworm embryos, while others were injected subcutaneously with the blister fluid containing living embryos, or with embryos suspended in normal saline. *Post-mortem* examinations on these monkeys were carried out after intervals varying from one month to one and a half years from the date of experiment. The examinations were conducted very carefully but the results in all instances were negative. The monkeys injected subcutaneously showed no *local lesions*, and in none of them were any guineaworms found.

In the month of April, 1913, a sample of water obtained from the well at Sarsola showed the presence of a large number of cyclops harbouring guineaworm embryos. About 38.6 per cent of the cyclops were found infected with guineaworm embryos. Advantage was taken of this, and a second series of experiments was instituted on twelve monkeys which were fed on this naturally infected well water, each monkey being given about 100 cc of the water through a stomach tube. More than 100 cyclops were present in 100 cc of water, so that each monkey swallowed about 38 infected cyclops.

Nine of these monkeys were examined at periods varying from one to ten and a half months after the date of feeding. Careful *post-mortem* examinations were made but the results were negative in all the animals examined. The remaining three monkeys out of the series are still alive and well. The monkeys used were all *Macacus sinicus*.

Owing to our failure to infect monkeys and the observed absence of the disease among the animals living in infected villages we thought that the worm might only develop in man. Volunteers were therefore called upon to drink water containing infected cyclops. As stated in your last report, five persons came forward. Each volunteer was given five infected cyclops to swallow in a small quantity of sterile water. The experiment was inaugurated on the 5th of April, and the cyclops used had been infected on the 24th of March, 1913. On the 18th March, 1914, i.e., three hundred and forty-eight days after drinking the infected water, one of the volunteers, a laboratory assistant, developed a very small blister on the dorsum of his right foot. The appearance of the blister was accompanied with fever, vomiting, and diarrhoea. On the 30th the blister had assumed the size of a marble, and it was then found to contain guineaworm embryos. From this date a large number of embryos were duly collected from the worm until the 14th April. The worm then broke, some local swelling and suppuration supervened, but this eventually subsided. In this case the volunteer, with the exception of two or three little ulcerations about the body in the rainy season, showed absolutely no symptoms until the appearance of the blister nearly a year after he swallowed the infected cyclops.

The other volunteers showed no signs and symptoms of the disease with the exception of a little occasional urticaria. In the case of one of the volunteers the blood examination showed an eosinophilia to the extent of 34 per cent in the month of October, 1913, but he did not develop a guineaworm.

These experiments go to prove that the cyclops is the actual intermediary host for the guineaworm, that the monkey *Macacus sinicus* is probably naturally immune to the disease, and that man is to some extent resistant to infection, for only one person of five who swallowed cyclops containing six to eight guineaworm embryos developed the disease.

An attempt was made to ascertain the number of embryos contained in an adult worm. This was done by dissecting out the uterus from a worm and counting the embryos in a measured volume of the fluid found in

the uterus and thus estimating the total number contained in the uterus. The result showed that a mature guineaworm contains about three million embryos.

PERMANGANATE AND THE CYCLOPS

The following experiments were conducted to ascertain the efficacy of potassium permanganate for destroying cyclops —

(1) To a large bottle of well water from Sarsola containing many cyclops a quantity of permanganate of potassium in solution was added until the water assumed a pink colour. Two and a half hours afterwards all the cyclops were dead. The bottle was put aside in the laboratory. Nine days later some living cyclops were again seen in the water.

(2) A standard solution of potassium permanganate containing 3.95 grammes to the litre was first prepared and some of this solution in quantities varying from 1 cc to 100 cc was added to a litre of water. Six cyclops were transferred to the water containing different strengths of potassium permanganate. The experiment showed that when 100 cc of the standard solution was added to a litre of water, all the six cyclops were killed in an hour. When 75 cc of the standard solution was added all but two cyclops were killed in one hour and six cyclops were dead in one and a half hours. When 25 cc and 50 cc of the solution was added all cyclops were dead in one and a half hours, but with 20 cc, 15 cc, 10 cc, 8 cc, and 6 cc, to the litre of water some cyclops were still alive after three hours. With 4 cc and lesser quantities of the standard solution some of the cyclops survived even after three hours exposure but all were dead in 24 hours.

"Potassium permanganate destroys adult cyclops but not their eggs so that after a time cyclops reappear in the water and these cyclops in favourable circumstances soon become infected with young guineaworms."

SUMMARY

Our researches on guineaworm disease have shown that —

(1) The disease is widely prevalent in India, in some parts of the country, as for example the western portion of the Madras Presidency, 39 persons per mille of the population annually suffer from the disease if prisoners admitted to jails represent the extent to which the disease exists among the general population. Even in the Deccan 28 persons per mille harbour the worm and in some villages as many as ten per cent of the inhabitants may be affected in a single year.

(2) Males appear to suffer from the disease more frequently than females. It does not occur among domestic animals living in infected villages nor can the disease be conveyed in the laboratory to monkeys (*Macacus sinicus*). Even man is to some extent resistant to infection for only one of five persons who swallowed in water from six to eight guineaworm embryos contained within cyclops developed the worm.

(3) The worm appears under the skin nearly a year after drinking infected water, during this long period the infected person shows no symptoms of the disease.

(4) The worm is very prolific, each female produces about three millions young worms.

(5) No other intermediary host for the young guineaworm than cyclops was found, the usual mode of infection is by drinking water containing infected cyclops.

(6) Cyclops were readily killed in weak solution of potassium permanganate but they reappear in the water after a time having probably developed from eggs which resist the action of this drug. After disinfection with potassium permanganate, wells may become infected again within a month if proper care is not taken to

prevent reinfection Cyclops can be easily removed from water by merely passing it through a piece of fine cloth

(7) The existence of this *easily prevented disease in India* is due largely to the indifference, ignorance and prejudices of the people who are careless about the conditions of their wells and do not mind drinking-water which has been soiled by people bathing in it

ANNUAL REPORTS

THE BENGAL TRIENNIAL HOSPITAL'S REPORT

THIS has been submitted by Surgeon-General C F HALLIS, C S I, M D, F R C P, Honorary Surgeon to the King

We can only find room for several extracts from this very interesting report

On the subject of Government Patronage of the so-called "*Independent*" Medical Profession, we quote the following —

"This policy was signified by the reservation of the newly created chair of Anatomy in the Medical College for the members of that profession It was also decided that the posts of House-Surgeon and House Physician at the larger Government Hospitals, and the appointments in some of the larger aided and private hospitals should no longer remain cadre appointments, but should be filled up by officers selected from such passed students of the Medical College as were eligible and desirous of acquiring experience in hospital work The three House appointments in the Mayo Hospital were accordingly filled by non-service men in 1911, and four of the House appointments in the Medical College Hospital were also given up to private practitioners in 1912, and three in 1913 Two appointments in private hospitals, *viz*, the North Suburban and Kamarhatty Hospitals, were also filled by members of the Independent Medical Profession in 1913 It is difficult at this early stage to criticise this scheme, or attempt to prophesy how it will ultimately be found to work, but I may be permitted to say that so far as the Medical College Hospital is concerned, it has not been received with enthusiasm, and difficulties have been experienced in working the scheme with the smoothness which is desirable Lieutenant-Colonel Culvert, Principal of the Medical College, Calcutta, an officer of much experience and with sound judgment, reports that the introduction of the change in the Medical College Hospital House appointments has not proved beneficial to any one He considers that though the scheme may show a small saving to Government, against this and as a set-off, it is attended with a distinct loss of efficiency, control and discipline in the hospital

"To quote his words, 'The change has pleased nobody, least of all the private practitioner, whilst it has added considerably to the petty worries of the Assistant Superintendent and the Principal' Another effect of the change is reported to be a constant tendency to increase the daily hospital expenditure The independent men, not having the same sense of responsibility and the same knowledge of hospital administration as officers in permanent Government employment, are disposed to spend more on diet and dressing materials I fully appreciate all these difficulties and I have personal knowledge that the present scheme is by no means popular even amongst those for whose benefit it was introduced It must also be remembered that vacancies in the Assistant Surgeon service are very

few, and I fear that under the present scheme the standard of men recruited for Government service will not be so high The best men who formerly used to be recruited into Government service, may take up these House appointments and hold them for a time in the hope of getting Government service, become tired of waiting and go away and get lost in the general body of general practitioners In spite, however, of these and many other difficulties inseparable from a scheme of this kind, I consider that it must be tried for a few years longer The analogy of large hospitals in Great Britain and elsewhere which is sometimes adduced in favour of the scheme, is, I consider, not applicable at present in India In England there are no official appointments in any of the large hospitals, and if a qualified student accepts a House appointment, he loyally carries it through accepting rebukes from his seniors as part of the day's work At the Calcutta Medical College Hospital I have been given to understand that independent House Surgeons and House Physicians are not at all disposed to accept rebukes in a chastened spirit, but on the other hand are inclined to resent reprimands from the senior officers for being late or for carelessness, etc, and threaten to resign and, indeed, sometimes do so, and substitutes have to be appointed to whom the routine work has to be taught afresh I venture to say that such conduct is unknown in England However, as I have said, the scheme has to be given a fair trial"

We are glad to see that arrangements have been made for *Post-Graduate Courses* for non-service Medical Officers

"The course lasts for three months and can be taken at intervals of five years in each case on payment of a fee of Rs 30 Advantage has been taken of this arrangement by a good many of the Medical Officers of the class referred to, the charges involved being borne by their employers, and I am glad to report that the system has been an unequalled success especially in West Bengal

"In the interests of the large number of young men, who pass out of the Campbell Medical School every year, a scheme has also been sanctioned under which six passed students will be employed in the Campbell Hospital every six months, as House Surgeons, House Physicians and Obstetric Assistants on a subsistence allowance of Rs 25 each per mensem It will be introduced from the Session 1914-15 and is expected to be most beneficial to the young men, as the experience gained in six months will be invaluable to them in after-life"

Experiments on Quinine Salts — "I may refer to chemical tests, which were carried out at the Medical College Hospital at the instance of the Government of India, with a view to determining the comparative efficacy of the various Quinine Salts and their relative keeping properties and also the Therapeutic value of Cinchon Febrifuge and Cinchonodine and other alkaloids Two reports embodying the results of these experiments were drawn up—one by Major E E Waters, and the other by Lieutenant-Colonel B H Deare and Major D McCay, and these have been submitted to Government I would also like to mention that an investigation is being made by Major A C MacGilchrist (under the auspices of the Indian Research Fund Association) into the Pharmacology of Cinchona derivatives

School of Tropical Medicine — The inauguration of a scheme for establishing a School of Tropical Medicine in Calcutta, deserves mention as one of the most important events of the triennium This measure has for its object the stimulation of scientific research, the removal of the anomaly of relegating to England the study of

the subject to the neglect of the ample opportunities for conducting it in India, and it is hoped that a scheme of this kind will meet the demands of the large number of medical men, both official and non-official, who are anxious to study the subject but are unable to go to England for the purpose.

The initial expenditure amounting to about 11½ lakhs (on account of the cost of land, building, equipment, etc.), will be met partly from the grants made by the Imperial Government (five lakhs) and the Scientific Advisory Board (one lakh) and partly from Provincial Revenues. The foundation-stone of the building was laid by His Excellency the Governor of Bengal on the 24th February, 1914. It is hoped that arrangements can be made by which the School will be adequately staffed before it is opened for work.

Mofussal Dispensaries—The present number of Dispensaries is by no means adequate for the needs of the Province. In several districts the average number of population per Dispensary is over a lakh. In others, where the proportion is smaller, the difficulty of reaching the dispensaries (owing either to the natural conditions of the districts or for want of means of communication, and also due to their being situated at unequal intervals) stands in the way of the sick getting the benefit of hospital treatment. Some Civil Surgeons are of opinion that there should be a Dispensary in each thana and I am inclined to support this view, the difficulty is, where is the money for the building and the maintenance to come from, as it must be admitted that Government cannot possibly provide all the medical facilities required for the whole Presidency and private charity is somewhat slow in responding to the call. I am, however, glad to report that about a score of new Dispensaries will shortly be opened, the buildings of nine of them being under construction, and that several others are under contemplation. The District Board of Bogra deserve to be congratulated on their resolution to open one new Dispensary every year and their example is worthy of imitation by other District Boards.

Surgical Operations (Calcutta)—Lieutenant-Colonel F. P. Maynard, I.M.S., performed the largest number of selected and important operations, viz., 3,003 during the period of 2 years and 2 months he was in charge of the Mayo and Eye Hospitals. Lieutenant-Colonel R. Bird performed 909 selected operations in 2 years and 4 months. Those performed by Major W. V. Coppinger at the Presidency General, Mayo and Eye Hospitals taken together in the space of 9 months and 20 days only, numbered 772, Major C. R. Stevens, 734 (in two-and-a-half years), Lieutenant-Colonel Green, 678 (in 2 years and 5 months), Captain V. Green-Armstrong, 605 operations (in 2 years and 5 months), Lieutenant-Colonel E. A. R. Newman, 565, Captain J. D. Sandes, 521, Captain A. H. Proctor, 437 (in 1 year and 5 months), and Major E. O. Thurston, 408 (in 1 year and 1 month only). Among Assistant Surgeons the names of Karuna Kumar Chatterjee, Kedar Nath Das, Jogesh Nath Sen and Jyotindra Mohan Das deserve special mention as having performed large numbers of selected operations, viz., 781, 682, 536 and 467, respectively. Miss Platt of the Dufferin Hospital performed 513 selected operations.

Mofussal.—The following officers are deserving of special mention on account of the large number of important operations each had performed in 1913—viz., Major E. O. Thurston (Burdwan), 230, Major C. A. Gourlay (Chittagong), 227, Major C. A. Lane (Murshidabad), 199, Lieutenant-Colonel A. R. S. Anderson (Dacca), 134, Assistant Surgeons—R. C. Barory (Burdwan), 144 and Jogendra Nath Mitra (Dacca), 113 and Sub-Assistant Surgeon Satish Chandra Sanyal (of Munshiganj sub-division and dispensary), 182.

Tuberculosis in Calcutta—There has been a gradual decrease since 1911 in the number of patients treated at the Hospitals for Tubercle of the lung, the figures being 2,128 in 1911, 1,792 in 1912 and 1,743 in 1913. This decrease is more probably due to discrimination on the part of the Hospital authorities in admitting patients suffering from advanced and incurable Phthisis, than to any actual diminution of Phthisical patients in Calcutta. There is a strong belief in fact amongst practitioners qualified to judge that the number of patients suffering from this disease is increasing. Judging from the high death-rate from this cause (over 2 per mille of the population) many are inclined to rank Tubercle of the lung as one of the principal causes of death in Calcutta, and ranking next to such deadly epidemic diseases as Plague and Cholera. The increasing number of Phthisis patients in the town has for a long time been a subject of grave anxiety to the Health Committee of the Corporation, and the question of establishing a special Tuberculin Dispensary in Calcutta is engaging attention. Though I am quite familiar with the statistics of this form of treatment in large towns in Great Britain, e.g., Edinburgh, where it has been very extensively tried and where the results appear very promising, I am nevertheless inclined to move very cautiously in the matter of starting Tubercular dispensaries for out-patients in Calcutta. It has to be remembered that Tubercular treatment is still more or less in the experimental stage, and that some of the greatest authorities on Tuberculin diseases, consider it a form of treatment liable very often to do more harm than good, unless administered by experts in carefully selected cases. At present we have very little experience of its use in India, but tuberculin is being given a very thorough trial in various places, and I am very hopeful that before long we may be in a position to advance the treatment still further in suitable cases.

Civil Surgeons' Offices—What markedly struck me during my visits to most districts was the generally unsatisfactory conditions under which the Civil Surgeon's office work has to be carried on. Most Civil Surgeons are not only handicapped as regards office accommodation, but the clerical staff is mostly insufficient and always underpaid. The small accommodation provided for their offices is no longer sufficient for the daily increasing records of the Sanitary, Vaccination and Medical Departments. There is barely sufficient space for the clerks and the Civil Surgeon to sit and transact their daily work. Then the Vaccination Inspecting Staff have to be accommodated and require some place to transact their business. Government have recently sanctioned additional hands for a few districts, and increased the pay of some of the existing clerks, but there is a great deal of room yet left for the improvement of the pay and prospects of a very hardworking class of Government servants who, with very few exceptions, perform their duties thoroughly, conscientiously and uncomplainingly.

Correspondence.

LABORATORY WORK DONE AT KURSEONG HOSPITAL IN 1913

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—

| Disease | Number | |
|------------------------|--------|------------------------|
| Ascaris lumbricoides | 61 | } Intestinal parasites |
| Ankylostomum duodenale | 30 | |
| Tania solium | 15 | |
| Mixed of all three | 3 | |

Ova of *T. dispar*, *z e*, whip worm was found in almost all cases

| | |
|---------------------|-----------------------------------|
| Tuberculosis | 5 for <i>T. Bacilli</i> |
| Pneumonia | 3 for <i>Pneumococci</i> |
| Malarial plasmodium | 10 crescent form |
| Do do | 16 malignant tertian form |
| Do do | 21 S tertian form |
| Do do | 12 quartan form |
| Do do | 4 mixed forms |
| Do do | in 114 not found in quinine taken |

cases

The blood of 68 malaria fever cases were not examined. All cases of malignant type were treated with quinine injection intramuscular with speedy recovery (18 to 36 grains were found sufficient to cure each case according to virulency)

I INTESTINAL PARASITE —

(a) Round worm cases are most common amongst Nepalis, Santonine and Betanaphthol combined or alone with purgative are found quite effective remedies to expel this class of parasite

(b) Ankylostoma This is mostly noticed amongst tea garden coolies who usually resort to hospital treatment in a very hopeless state, *z e*, anaemia with dropsy of lower limbs, abdomen and feeble heart with blunt Manson's mixture Thymol and Betanaphthol tried, but in extreme cases none is found beneficial but in mild cases better results were obtained with Betanaphthol. The following (mixture) formula is found efficacious —

| | |
|-------------------|---------------------------|
| R Betanaphthol | grs 10 |
| Emulsio Oil Recin | oz $\frac{1}{2}$ |
| Oil Eucalyptus | m 5 (3) doses three times |

a day (adult dose on liquid food) continued for a week, with a week's interval, children on half or quarter dose according to age

(c) *Tenia Solium* This is very common among Bhutias. They were admitted for diarrhoea, dysentery and colic which were found to be the secondary complications. The following formula is found effective and useful here

| | |
|----------------|------------------|
| R Betanaphthol | grs 10 |
| Oil maleferu | dr 1 |
| Oil Eucalyptus | 20m |
| Oil Terebinth | 20m |
| Oil Recini | $\frac{1}{2}$ oz |

Adult dose on empty stomach 2—3 doses every third day on liquid food were found efficacious to cure each case. The faeces of all cases were examined on microscope under 16" lens. The ova readily and easily became distinct on mixing it with a drop or two of glycerine with the specimen, immediately before examination.

Teraí Fever —The malarial fever cases are virtually received from Teraí and Teesta Valley, *z e*, places from the foot of Himalayan mountain (There being no malaria cases in the hill side). Blood examinations are being made in almost in every cases on their admission, and the result was negative in those who have taken quinine before their admission. Malignant, B tertian and plasmodium (in ring, sporulating, segment forms) were most common (type of fever admitted in 1913 than the quartan type). Leishman's stain was used for this purpose after mixing it with equal part of water the stain kept for 20 minutes. Quinine in mixture 30 grains per diem to each ordinary case, and Quinine Bihydrochlorate in 9 grains doses intramuscularly injection to severe cases, 3—4 injections were found sufficient and most efficacious method of curing the disease. Quinidine or other forms of quinine such as powder pills are found to be ineffective in acute and emergent cases.

Tuberculosis —There were 9 inpatients for T lungs and 20 cases for other tuberculosis, sputa of all cases were examined. In 5 cases T B was readily found in numerous number, and carbol fuchsin staining method keeping 10 minutes than usual 5 minutes, and in two bad cases tuberculin were injected with negative result in both, and the patients having had cavities in both lungs died within 3 months. Other cases were discharged as temporary relieved or disappeared finding no benefit. There were 13 cases of cervical and abdominal (mesentery) tuberculosis and other 7 from hipjoint and spinal tuberculosis.

The tuberculosis is increasing every year among the Bhutias and railway employees (all hill people), those that are living in filthy state and sleeping in ill ventilated and dark room, indulge in bad habit, improper food, diseased meat or undone meat and poor living (want of proper ablution or personal cleanliness), using open kerosine oil lamp (*dhibri*) in the small room, excessive smoking of cigarettes which has become a fashion among the hill people of all ages are susceptible to tuberculosis.

There were 14 cases of lobar pneumonias of which only 3 cases of pneumococci were found, and in all other cases the result of examination of sputa were negative.

In 4 instances only staphylococci were found after methylene blue staining for diplococci, staphylococci and streptococci, &c

II DYSENTRY

There were 21 admissions for dysentery. All were treated with big doses of Ipecac, making pill with Tannic acid or emetine injection. The latter was found more active and efficacious in acute amoebic cases though the former were found as good in subacute and chronic cases along with hot rectal douching of quinine and boric acid as per formula.

| | |
|-----------------|----------------------------|
| R Quinine Sulph | grs 20 |
| Acid Boric | dr 1 |
| Ti Opri | m 10 |
| Hot water | pt 1 retain for 10 minutes |

Yours faithfully,

SASI M DASS,

Senior Grade Sub Assistant Surgeon,
In charge Hospital & Dispensary,

Kun seong

THERAPEUTIC NOTICES

MESSRS REED and CARNICK of Jersey City, U S A, inform us that their product NEPHRITIN is stocked by the following firms in India, viz, Bathgate & Co, Calcutta, Kemp & Co, Bombay, B K Paul & Co, Calcutta, and by Apothecaries Co and Cargills, Ltd, of Colombo. Nephritin is an organic product and used in acute Nephritis and in arteriosclerosis.

MESSRS BUTTERWORTH & Co (Calcutta) send a list of new Medical books for sale, viz, Mason's Hospital Corps, U S A Handbook, Year book of Open Air Schools, etc Thompson's Occupational Diseases, Wynter's Minor Medicine, Vedder's Beriberi, Lt Col Elliot's Sclerocorneal trephining (new ed), and several other books on Ophthalmology—also the Medical Annual.

Service Notes.

WAR AND SERVICE NOTES.

THE year 1915 opened very badly, with the loss of the *Formidable*, a pre Dreadnought battleship of 15,000 tons, which was sunk in the Channel, blown up by a mine or torpedo in the early morning of 1st January, with great loss of life. Out of a complement of about 800, only about 200 have been saved. Captain Arthur N Loxley, the commander, and all three medical officers, are among those lost.

Fleet Surgeon Godfrey Taylor was educated at Trinity College, Dublin, where he took the B A in 1895, the M B, B Ch, and B A O in 1897. After acting as Resident Medical Officer of the City of Dublin Hospital, he entered the Navy. He joined his ship on 1st October 1913, and attained the rank of Fleet Surgeon soon after, on 29th November 1913. Surgeon William Mellis Meuns was educated at Aberdeen, where he took the M B and Ch B in 1903, entered the Navy on 5th November 1903, and joined the ship on 29th July 1914.

Surgeon Septimus Hibbert, R N V R, was educated at Oxford and at St George's. He took the M A, M B, and B Ch at Oxford in 1913, joined the Royal Naval Volunteer Reserve on 14th August 1913, was called out for service when the war broke out, and posted to the *Formidable* on 29th July 1914.

ON 1st January 1915 twenty casualties were reported, 11 officers killed and 9 wounded. On the 2nd only six, one killed, four wounded, and one prisoner. No medical officers were among the number.

ON the 3rd, however a very long casualty list was published, 102 in all. In the British Expeditionary Force 11 officers were killed, 13 wounded, 2 missing, and one prisoner. The Indian contingent lost four British officers killed, 14 wounded, 2 prisoners, and four missing. Indian officers ten killed, 31 wounded and ten missing. For the three days, 5th to 7th January inclusive, the casualty lists included 13 officers killed, 17 wounded, and one missing. Up to the 7th January the names of no medical officers appeared in the lists.

DURING December Lieutenant William Ebeneyer Maitland, of the Seaforth Highlanders, was reported to have died of wounds. He was educated at Glasgow University, where

he took the M B and B Ch in 1913, and when the war broke out was serving as house physician of the Glasgow Royal Infirmary, a post which he resigned to take a commission as second Lieutenant in the third battalion, Seaforth Highlanders, from 15th August 1914

COLONEL DAVID DOUGLAS CUNNINGHAM, Bengal Medical Service, retired, died at Torquay on 31st December 1914. He was born on 29th September 1843, educated at Munich and at Edinburgh, where he took the M B and C M, in 1867, and entered the I M S, passing first, on 1st April 1868. He became Surgeon on 1st July 1873, Surgeon Major on 1st April 1880, Brigade Surgeon Lieutenant Colonel on 24th October 1892, and retired on 26th June 1898. He was subsequently promoted to full Colonel on the retired list, on appointment as Honorary Physician to the King, on 4th December 1907. He was elected F R S on 6th June 1889, and received the C I E on 3rd June 1893. After the course at Netley, Cunningham and the late Surgeon Major T A Lewis, who passed first into the A M D at the same examination, were sent to Germany for special training in scientific research before going out to India. For many years after their arrival in India both were employed altogether in research into the causation of tropical diseases, especially cholera. After Lewis' death the most important of their reports on their work were published, in 1888, in a memorial volume, *Physiological and Pathological Researches*. Later Cunningham held for many years the posts of Professor of Physiology and Pathology, finally of the former alone, in the Calcutta Medical College. The *Army Lists* assign him no war service. After his retirement he published the results of many years' study of Indian animal life in two interesting volumes, *Plagues and Pleasures of Life in Bengal*, and *Some Indian Friends and Acquaintances*.

Colonel Cunningham was the son of the Revd W B Cunningham of Piostonpann. He was an expert botanist and geologist, though these were hobbies rather than his life's work. He co-operated with the late Sir George King in researches in the manufacture of quinine which enabled the Government of India to supply itself with the drug at a cheaper rate than before, and so to extend greatly its general use in India. He acted more than once, for short periods, for Sir George King, as Superintendent of the Botanical Gardens, Calcutta, and the cinchona plantation at Darjeeling, and also accompanied the Sikhim expedition of 1885 as Government naturalist.

LIEUTENANT COLONEL RICHARD CARELESS SANDERS, Bengal Medical Service, retired, died at Farnham on 31st December 1914. He was born on 13th July 1845, educated at the London Hospital, took the M R C S and L S A in 1867, and subsequently the M D Durham and the F R C S Edinburgh in 1882. He entered the Indian Medical Service as Assistant Surgeon on 1st April 1869, became Surgeon on 1st July 1873, Surgeon Major on 1st April 1881, and Brigade Surgeon Lieutenant Colonel on 4th October 1893, retiring on 13th July 1900. The *Army Lists* assign him no war service. Most of his earlier years were spent in civil employ in the North West, now the United Provinces, where he made a name by his surgical work, especially in lithotomy and cataract extraction. When the late Deputy Surgeon General H Cayley, Professor of Ophthalmic Surgery in the Calcutta Medical College and Ophthalmic Surgeon to the College hospital, went home on leave prior to retirement in 1884, Sanders succeeded him in that post, and held it to the end of his service. During his tenure of office a new ophthalmic hospital, the Shama Charan Laha Eye hospital, was built in the hospital grounds, for the accommodation of ophthalmic cases, which had previously been housed in some of the general wards of the College hospital.

SURGEON-MAJOR NATHANIEL JAMES GRANT, Bengal Medical Service, retired, died on 27th September 1914. He was born on 13th June 1831, took the M R C S in 1852, and entered the Indian Medical Service as Assistant Surgeon on 18th December 1853. He became Surgeon on 3rd June 1865, Surgeon Major on 1st July 1873, and retired on 27th April 1877. The *Army Lists* assign him no war service.

SURGEON-MAJOR JOHN THOMSON WELSH, Bombay Medical Service, retired, died on 13th September 1914. He took the L R C S Edinburgh, and the M D St Andrews in 1862, and entered the A M D as Assistant Surgeon in February 1865. The Indian Medical Service being again, after five years' closure, thrown open to competition, while he was at Netley, he went up for the examination, and passed in, along with Assistant Surgeons Harvey Cleghorn, and Bennett, being gazetted Assistant Surgeon, I M S, from 1st April 1865. He became Surgeon on 1st July 1873, Surgeon Major on 1st April 1865, and retired on 27th October 1885. The *Army Lists* assign him no war service.

CAPTAIN GERALD LEWIS COLHOUN LITTLE, I M S, was placed on temporary half pay, on account of ill health, on 15th November 1914. He was born on 2nd October 1883, educated at Edinburgh, where he took the M B and Ch B in 1907, and entered the Indian Medical Service as Lieutenant on 1st August 1908, becoming Captain on 1st August 1911. He was Medical Officer of the 95th Infantry.

No casualty lists were published on 25th and 26th December. On Monday, the 26th, there was a long list, 42 officers killed, 49 wounded, and six missing, also two officers wounded in the Persian Gulf. No medical officers were among them. On the 29th December the lists contained 9 officers, killed 23 wounded, including Lieut H F W Adams R A M C, and one missing.

LIEUTENANT HERBERT FRDERICK WILKID ADAMS, R A M C, took the M B and B Ch at Edinburgh in 1912, and got a temporary commission as Lieutenant in the R A M C, on 17th August 1914.

On 30th December the reports showed four officers killed, two wounded, and four prisoners. No medical officers were among them.

Another long list appeared on 31st December. The British Expeditionary Force contributed 6 officers killed, 5 wounded and one missing, the India contingent, 17 British officers killed, 14 wounded, 4 missing and Indian officers, 4 killed, 4 wounded, and 6 missing, while in the force acting in the Persian Gulf three British officers were wounded, one Indian officer killed, and three wounded, a total of 68 casualties. No medical officers' names appeared in the list.

The Government of Burma has granted a *Certificate of Honour* and a Gold Watch to Sub Asst Surgeon Devi Doyal.

SIR GEORGE BIRDWOOD, K C I F, M D, I M S (ret'd), celebrated his 82nd birthday on 8th December 1914.

In consequence of mobilization the services of the undermentioned officers are replaced temporarily at the disposal of the Government of India, Home Department, from the dates noted against their names:—

Major R M Dalziel, I M S, Superintendent, Central Jail, Multan, 25th October, 1914. Captain W T Finlayson, I M S, Superintendent, Boistal Central and Female Jails, Lahore, on 25th October, 1914. Major A W Greig, I M S, Superintendent, Central Jail, Montgomery, 22nd October, 1914, also Captain C A Gill, I M S, Chief Malakia Medical Officer, Punjab 8th October, 1914, Lieutenant Colonel E V Hugo, I M S, Professor of Surgery, Medical College, Lahore, 1st December 1914, Captain H A H Robson, I M S, Superintendent, Punjab Lunatic Asylum, Lahore, *sub pro tem*, 2nd December, 1914, Major H Ainsworth, I M S, Professor of Ophthalmic Surgery and Diseases of the Ear and Throat, Medical College Lahore, 2nd December, 1914.

COLONEL C J BAMBER, I M S, Inspector General, Civil Hospitals, Punjab, was appointed Sanitary Commissioner, Punjab, from 16th November, 1914, in addition to his own duties, relieving Lieutenant Colonel Smith, I M S, whose services have been replaced temporarily at the disposal of the Government of India, Education Department.

MAJOR W H C FORSTER, I M S, Professor of Pathology, Medical College Lahore is appointed Deputy Sanitary Commissioner, Punjab, and Professor of Hygiene, Medical College, Lahore, from 16th November, 1914.

In consequence of mobilization, the services of the undermentioned officers are replaced temporarily at the disposal of the Government of India, Education Department, from the dates noted against their names:

Major H M Mackenzie, I M S, Deputy Sanitary Commissioner, Punjab *sub pro tem*, 23rd October, 1914, Lieutenant Colonel S Browning Smith, I M S, Officiating Sanitary Commissioner, Punjab, from November, 1914.

LIEUTENANT COLONEL ARTHUR CHARLES YOUNAN, M B, has been permitted by the Most Hon'ble the Secretary of State for India, to retire from the service subject to His Majesty's approval, with effect from the 1st January 1915. Lieutenant Colonel Younan entered the service on 1st October 1885 for many years past he has been Medical Officer, 25th Punjab. He went home on medical certificate on 1st January 1914.

SENIOR ASSISTANT SURGEON AND HONORARY CAPTAIN ARTHUR ROBERT PATERSON is returned in the service after the age of 55 years, with effect from the 25th December 1914, until further orders, and will be borne as supernumerary in his rank and grade.

His Excellency the Governor of Bombay in Council is pleased to appoint Lieutenant-Colonel S H Burnett M B, C M (Abdn), I M S, to act as Presidency Surgeon, Second District, in addition to his own duties, pending further orders

His Excellency the Governor of Bombay in Council is pleased to appoint Captain R B S Sewell I M S, to act as Health Officer of the Port of Aden, and Medical Officer, European General Hospital, Aden, in addition to his military duties, *vice* Major J L Majoribanks, M D, D P H (Edin), I M S, pending further orders

DR MASHA ALLAH KHAN, civil surgeon, is transferred from Hamirpur to Unao

DR GOBIND CHANDRA BANARJI, officiating civil surgeon, is transferred from Sultanpur to Hamirpur

His Excellency the Governor of Bombay in Council is pleased to appoint Lieutenant Colonel P P Kilkelly, M B, B Ch (Dub), I M S, to act as Medical Officer to the Kathiawar Political Agency and in charge of the West Hospital, Rajkot, *vice* Major A Hooton, I M S, pending further orders

THE undermentioned is appointed to be temporary Lieutenant, Indian Medical Service, subject to His Majesty's approval, with effect from the 8th October 1914 —
Vinayak Mahadeo Phatak

WE have received (writes *The Pioneer*) the following account of the good work done by an Indian medical officer who was killed in action some two months ago. The officer in question was Major Atal, I M S —

"On the 31st October Captain Maclean, who is now in hospital in London was badly hit. Major Atal dressed his wounds. Captain Maclean was too seriously wounded to be removed at once and the regiment was obliged to retire temporarily. Major Atal, however, would not leave Captain Maclean and in consequence they were both taken prisoners by the Germans, but the Regiment (129th Baluchis) immediately came to their relief, killed 10 of the enemy, captured 13 and rescued them both. He was always in the forefront of the battle, ministering to the wounded soldiers and dressing their wounds under heavy fire. Captain Kunwar Indrajit Singh and Major Atal were apparently thrown a good deal together for only two days before the 23rd November, Kunwar Indrajit Singh writes to his father: "The last afternoon we had in the trenches was a terrible one. We had a most anxious time. Major Atal was superb. He went right into the midst of shells and brought away the wounded. I helped but he set the example and I merely followed." Major Atal had occupied a small house which he had made into a hospital in a village near the trenches. The village was vigorously shelled for days. On the afternoon of the 23rd November at about 2.30 P M, a large "shell" dropped right into the hospital killing Major Atal, Captain Singh and four men. Colonel W V Southey, commandant of the 129th Baluchis, while highly praising Major Atal's demeanour in the battlefield writes to inform his family that even before Major Atal's death he had recommended him twice for his excellent work and bravery, and that an officer commanding Sappers and Miners had also reported him as behaving most bravely in the field. Their Majesties the King Emperor and Queen Empress graciously condescended to send a message of sympathy and condolence to Mrs Atal on her sad bereavement."

NEW YEAR HONOURS LIST

THE following list of Honours was inadvertently omitted from the February number —

Colonel, G W P Dennys, C I E, I M S, Inspector General of Civil Hospitals, Central Provinces
Major S R Christophers, M B, I M S, in chge of Malabar Bureau

KAISER I HIND MEDALS

Gold

Major J Husband, I M S, N W F Province
Charles A Bentley, Special Malaria Officer, in Bengal

Silver

Assistant Surgeon M H Dutta, Lecturer in Anatomy, Lahore
Sub Assistant Surgeon Har Narain, Kotah

KHAN BAHADURS

Khan Sahib N M Usman, Civil Surgeon, Madras
Assistant Surgeon S M Mehta, Bombay

RAI BAHADURS

Nil Ratan Banarji, Assistant Surgeon, U P, Rai Sahib
Lachman Das, Civil Surgeon, Punjab

KHAN SAHIBS

Chaudhri Rahmat Ulla Khan, of Surgoda, Punjab, private practitioner

Sub Assistant Surgeon Munshi Ahmad Buksh, Nowgong, C I

Sub Assistant Surgeon Zahid Din Khan, at Meshed
Sub Assistant Surgeon Nuriulla, late of Yatung, Tibet
Sub Assistant Surgeon Sher Muhammad, Viceroy's Body Guards

RAI SAHEB

Assistant Surgeon B B Gupta, Mayo Hospital, Nag pore

Assistant Surgeon Lala Ram Chand N W F Province
Babu M N Bhattacharya, acting P A to Surgeon General with the Government of Bengal

RAO SAHIB

Sub Assistant Surgeon M R Ry, J D C Ayalga, Madras

HONORARY CAPTAIN D O'C MURPHY, I S M D (retired list), late a Civil Surgeon in these Provinces, is appointed to be temporary Civil Surgeon, with effect from the 1st January 1915, and is posted to the Buldana District

Under Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Honorary Captain D O'C Murphy, I S M D, temporary Civil Surgeon, Buldana, to the executive and medical charge of the Buldana District Jail

ON relief by Honorary Captain D O'C Murphy, I S M D, 2nd Class Military Assistant Surgeon F K Holmes, sub *pro tem* Civil Surgeon, Buldana, is transferred in the same capacity to Amraoti

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Military Assistant-Surgeon F K Holmes, sub *pro tem* Civil Surgeon Amraoti, to the executive and medical charge of the Amraoti District Jail

LIEUTENANT COLONEL J PENNY, I M S, who has been appointed to be Civil Surgeon, Mandalay, is placed in charge of the Central Jail, Mandalay, in addition to his own duties, as a temporary measure, in place of Senior Military Assistant-Surgeon and Honorary Lieutenant E J Murphy, transferred

MR R A HOLLINGSWORTH, L R C P & S (Edin), is posted to the charge of the Insam Central Jail as a temporary measure, in place of Senior Military Assistant Surgeon and Honorary Captain T W Minty, Civil Surgeon, Insam and Hanthawady Districts, who is holding charge of the Insam Central Jail in addition to his own duties

ON relief by Senior Military Assistant Surgeon and Honorary Lieutenant L K Rodriguez, Lieutenant Colonel J Penny, I M S is appointed to be Civil Surgeon Mandalay, in place of Senior Military Assistant Surgeon and Honorary Lieutenant E J Murphy, transferred
This department Notification No 397, dated the 26th November 1914, is hereby cancelled

LIEUTENANT COLONEL R H CASTOR, I M S, whose temporary posting to the civil medical charge of the Amherst District was ordered, in this department Notification No 393, dated the 27th November 1914, is appointed to be Civil Surgeon of the Amherst District until further orders

ON relief by Lieutenant Colonel J Penny I M S, Senior Military Assistant Surgeon and Honorary Lieutenant E J Murphy is appointed to be Civil Surgeon, Myaungmya, in place of Mr R A Hollingsworth, transferred

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of India, Army Department, with effect from the dates they hand over charge —

Major J C S Oxley, F R C S, M R C S, L R C P, D T M, Civil Surgeon Amraoti
Major G Fowler, L P C P & S, D P H, D T M, Civil Surgeon, Akola

IN consequence of mobilization the services of the under-mentioned officers are replaced temporarily at the disposal of the Government of India, Home Department, with effect from the dates noted against their names —

Major R M Dalziel, I M S, Superintendent, Central Jail, Multan, 25th October 1914 (afternoon)

Captain W T Finlayson, I M S, Superintendent, Borstal Central and Female Jails, Lahore, 27th October 1914 (afternoon)

Major A W Giegl, I M S, Superintendent, Central Jail, Montgomery, 22nd October 1914 (afternoon)

CIVIL ASSISTANT SURGEON BANKIM CHANDRA SANYAL, attached to the sadi dispensary, Hardoi, is appointed to hold civil medical charge of that district, in addition to his own duties, *vice* Captain Parkinson, I S M D, transferred

CAPTAIN J T PARKINSON, I S M D, Civil Surgeon of Shahjahanpur, is appointed to hold visiting medical charge of Hardoi

LIEUTENANT COLONEL J MORWOOD, I M S, Civil Surgeon, is transferred from Shahjahanpur to Benares

CAPTAIN J T PARKINSON, I S M D, Civil Surgeon, is transferred from Hardoi to Shahjahanpur

LIEUTENANT W J CORRIGAN, I S M D, Deputy Superintendent, Lunatic Asylum, Agra, to hold charge of the duties of the Superintendent, Lunatic Asylum, Agra, in addition to his own duties, *vice* Major Overbeck Wright, I M S, reverted to military duty.

LIEUTENANT COLONEL M A KER, I M S, is granted six months' medical leave out of India

MAJOR H A F KNAFTON, I M S, taken over charge of the Cantonment Hospital, Nasirabad

WE are very sorry to hear of the death on 24th January 1915, of Lieutenant-Colonel J R Adie, I M S (ret'd), at Ambala. Lieutenant Colonel Adie only recently retired, having done of late years excellent work on mosquito malaria. For years past his health has not been good, nearly twenty years ago he got his services transferred from Bengal to the Punjab on account of the climate of Bengal not agreeing with him.

THE undermentioned are appointed to be temporary Lieutenants, in the Indian Medical Service, subject to His Majesty's approval, with effect from the dates specified —

Charles Stiebel, M B, F R C S E Dated 17th November 1914

Shripat Govind Ranadav Dated 19th November 1914

Satyendra Nath Mukerji, M B, F R C S E Dated 20th November 1914

Sakria Nath Chaudhuri Dated 23rd November 1914

Devarayadray Venkata Guni Dated 23rd November 1914

Jehangir Kaikhusio Nauman Dated 23rd November 1914

Richard Charles Palmer Beiryman Dated 24th November 1914

Graham Colville Ramsay, M B Dated 24th November 1914

Kaikhusio Bejonji Kanga, F R C S E Dated 30th November 1914

Girdhari Lal Batra, M B Dated 1st December 1914

John Barre deWinton Moloney, M B, F R C S E Dated 1st December 1914

Behramji Pestonji Sahawala, F R C S Dated 1st December 1914

Bindashwari Prasad, M B Dated 2nd December 1914

Satyendranath Roy, M B, F R C S E Dated 2nd December 1914

Jotindra Mohan Das Gupta, M B Dated 2nd December 1914

Maung Ba Yin, M B, Dated 2nd December 1914

Probodh Chandra Banerjee, Dated 2nd December 1914

Thomas Henry Bishop Dated 3rd December 1914

Shivax Sorabji Bankei Dated 5th December 1914

Ian Douglas Grant, M B Dated 5th December 1914

Kaikhusio Keisaspji Dadachanji Dated 8th December 1914

Phirozeshaw Jamshedji Kolaporewalla Dated 8th December 1914

Ambujnath Bose, M B Dated 8th December 1914

Sobha Ram Kapoor Dated 8th December 1914

David Perceval Oliver, M B Dated 14th December 1914

Codanda Madiah Ganapathy, M B Dated 14th December 1914

Madan Gopal Bhandari, M B Dated 14th December 1914

MAJOR W H COX, D S O, I M S, has been granted by His Majesty's Secretary of State for India a further extension of leave on medical certificate for three months

CIVIL ASSISTANT SURGEON Y SUBRAHMANYAM, L M & S (Mad), D P H (Lond), is appointed to officiate as Civil Surgeon, Upper Chinswan District, in place of first class Military Assistant Surgeon W L Brookes, transferred

LIEUTENANT COLONEL S. C. PHILSON, R A M C, acts temporarily as A D M S, Presidency Brigade, *vice* Colonel R Kirkpatrick, C M G, gone home for service with Kitchener's Army

LIEUTENANT COLONEL H FOOKS, I M S, acts as A D M S of the 6th Poona Divisional area and the Bombay Brigade

CAPTAIN C A REINHOLD, I M S, on active service in France, has been invalided to England

LIEUTENANT COLONEL DAVIDSON, I M S, acts as Professor of Midwifery, Medical College, Lahore

LIEUTENANT-COLONEL BOTT, I M S, acts as Professor of Surgery in Lahore *vice* Lieutenant Colonel E V Hugo, F R C S, I M S, reverted to military duty

SURGEON GENERAL SIR C PARDEY LUKIS, M D, F R C S, K C S I, has received the Volunteer Officers' Decoration

A HOME correspondent writes in the *Pioneer* — "Captain R O MacWatters, I M S, had a narrow escape while attending to the wounded in the trenches last month. A shell burst overhead killing the man directly in front of him and throwing him violently to the ground. Captain MacWatters was sent to England suffering from concussion, but made a quick recovery, and has since returned to his regiment at the front."

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements, and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta.

Annual Subscriptions to "*The Indian Medical Gazette*," Rs 12, including postage, in India Rs 14, including postage, abroad

BOOKS, REPORTS, &c, RECEIVED —

Bengal Hospitals Triennial Report
Murphy's Clinics (2 Vols) W B Saunders & Co
Madras Asylums Report
Bengal Sanitary Report
Bihar & Orissa Sanitary Report
Bombay Bacteriological Report
The Medical Who's Who, 1905
Episcopal Hospital (Philadelphia) Reports
E P Davis Manual of Obstetrics W B Saunders & Co
K N Das' Handbook of Obstetrics Butterworth & Co (India) Calcutta.
Calcutta.
Prophylaxis of Malaria, Craig Washington, Government Printing Press
Report of Health of U S Army
Lucas Book of Prescriptions J & A Churchill
Monvhan's Abdominal Operations (2 Vols) W B Saunders & Co
Allen's Local Anæsthesia W B Saunders & Co
Whitla's Pharmacy and Therapeutics 10th Edn (price 9s) Baillière, Tindall & Cox
Wright & Smith's Diseases of the Throat 21s Baillière, Tindall & Cox
Ghosh & Dass' Hygiene and Public Health (2nd Edn) Hilton & Co, Calcutta
Campbell's Aids to Pathology (3rd Edn) Baillière Tindall & Cox
Gadd's Synopsis of the (new) B P 1s Baillière, Tindall & Cox

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Lieutenant Colonel D G Crawford, I M S (ret'd) Brighton, Lieutenant Colonel D T Lane, I M S, Punjab, Major E Barnardo, I M S, Bareilly, Colonel G W P Denny, C I E, Nagpore, Lieutenant Colonel Sir L Rogers, C I E, Calcutta, Lieutenant Colonel J Gould, I M S, Simla, Dr A Neve, Kashmir, Major Overbeck Wright, I M S, Agra, Major J W Rait, I M S, Dehra Dun, Captain Barker, I M S, Basra, Captain O A Gill, I M S, Lahore, Dr S L Sreer, Krishnagar, Surgeon General Bannerman, Madras, Dr McCarthy, Amritsar, Lieutenant Colonel F O'Keefe, I M S, Calcutta

Original Articles.

PYORRHOEA ALVEOLARIS AS A STREPTOCOCCAL AND AMOEBIC DISEASE AND ITS TREATMENT BY VACCINE AND EMETINE

By SIR LEONARD ROGERS, Kt, M.D., F.R.C.P. (M.S.),
Professor of Pathology, Calcutta

Great Frequency of Pyorrhœa Alveolaris in the Tropics—An unhealthy condition of the gums and the formation of pus in the sockets of the teeth is an extremely common and intractable condition in tropical India. Occasionally it is associated with impairment of the health of the patient such as indigestion, spue-like diarrhoea and anæmia, so that it is not to be lightly regarded. The resistance of the disease to treatment is well known, and is reflected in the numerous local remedies which have been recommended, of which the best are tincture of iodine, peroxide of hydrogen, and permanganate of potash, the latter in particular often markedly controlling the formation of pus, although it usually fails to completely cure the condition. If tartar is present on the teeth its removal is essential as a preliminary to any treatment.

Bacteriological Examination—In the *Lancet* of June 6th, 1914, I recorded a case of chronic spue accompanied by very advanced pyorrhœa alveolaris with looseness of all the teeth, in which I obtained a nearly pure culture of streptococci from the pus, and the condition was completely cured in a few weeks by injections of an autogenous streptococcus vaccine and emetine. During the last few months I have treated with vaccines a number of cases of chronic pyorrhœa alveolaris, most of which have been sent to me by Dr. Angus Smith, dental surgeon, as local applications had failed to control the disease. Cultures on glycine agar have almost invariably shown nearly pure cultures of streptococci, but in one with small gumboils a mixed strepto- and staphylococci were obtained. In each case autogenous vaccines were prepared and the results have been so satisfactory that I desire to draw special attention to this method of treatment.

Autogenous Streptococcal Vaccines in the Treatment of Pyorrhœa Alveolaris—I usually begin with a dose of fifty million and a week later give one hundred million repeating this at weekly intervals as long as is necessary. There is as a rule no febrile reaction, but after one or two doses improvement sets in. The results may be briefly summarised by saying that out of seven successive cases which have been under observation for upwards of a month four were completely cured after receiving from four to six injections. One improved greatly but relapsed and amœbæ were then found in the pus. One patient attended very

irregularly and received only three doses in the course of two months, with but slight improvement, the treatment not having been given a fair chance. The remaining case was a very bad one with tender gums and severe and very frequent attacks of facial neuralgia. He has had eight injections of the vaccine, and is very much better, although still not quite cured. After three injections the neuralgia disappeared, and has not recurred. The spue patient has remained well for fifteen months, but in the other cases only two or three months have elapsed, so it is too early to say if the recovery will be permanent. The above results are, therefore, very satisfactory in such an obstinate affection. Several other cases are making good improvement after only two or three weeks treatment.

Amœbæ in Pyorrhœa Alveolaris—In July, 1914, M. T. Barnett in a paper read before the Pennsylvania State Dental Society recorded having found entamœbæ in forty-six consecutive cases of pyorrhœa alveolaris and the success of local applications of a half per cent solution of emetine hydrochloride. In September of the same year C. C. Bass and F. M. Johns, of New Orleans, confirmed this discovery, and found the amœbæ in 85 out of 87 cases, and obtained favourable results by the use of emetine hypodermically. On learning of these results very recently I made a microscopical examination of the pus in a very chronic case of the disease in a doctor, and soon found numerous active amœbæ, as many as five being visible in one field of the microscope. A grain of emetine was injected subcutaneously, and on the following day only a few sluggish amœbæ were found, while after a second dose of emetine they had disappeared from the pus, and the gums showed slight improvement. After four bi-weekly injections of emetine, pus was still abundant although no amœbæ could be found, and vaccine is now being tried. In two other patients who were improving under autogenous vaccines, no amœbæ were found, but in one of two untreated cases they were present. The discovery of amœbæ in pyorrhœa alveolaris by the American workers, therefore, opens up an interesting field of inquiry in India. Probably a combination of vaccines and emetine will be the best treatment of this obstinate disease, and promises to be effective, even in severe cases which have resisted all local treatment.

CONCERNING INOCULATION AGAINST PLAGUE AND PNEUMONIA AND EXPERIMENTAL STUDY OF THERAPEUTIC METHODS

By W. M. HAFKINE,

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THE present notes have been written in connection with official correspondence regarding

the anti-plague inoculation and the study of this and other health problems in India

PART I

ON PROPHYLACTIC INOCULATION AGAINST PLAGUE AND PNEUMONIA

THE method of anti-plague inoculation was introduced in January, 1897, and, in the year following, its effects were subjected to an enquiry by a Government Commission known as the Indian Plague Commission, 1898-99

The report on that enquiry was published in 1900-01, and therein were formulated views different from mine on a variety of subjects, some of considerable importance. Among the members employed on the enquiry were professors of Medical Colleges and civil officials serving in high posts with the Governments of India, Bombay and the Punjab, and their findings have been and are, very properly, viewed as a guide in matters affecting the plague inoculation. It is, therefore, essential that such of their pronouncements as were due to incomplete information available at the time or to misunderstanding should be rectified when the subjects become clear.

Two of the members of the Commission, Professor (now Sir Almroth E.) Wright and Dr. Armand Ruffer, had, some years previously to their employment on the enquiry, been initiated by me in the principles and methods of preventive inoculation against cholera*, and at a subsequent date, in 1896, I had started one of these members, Sir A. E. Wright, upon the work of preventive inoculation against typhoid†. It will appear from a statement by Sir A. E. Wright, quoted lower down, that it was largely his views—but, no doubt, also Dr. Ruffer's—that guided the Plague Commission in their conclusions regarding certain aspects of anti-plague inoculation. Lately, Sir A. E. Wright, together with Drs. W. Parry Morgan, L. Colebrook and R. W. Dodgson, have been employed, for some two years, in investigating the pneumonia among the Rand Mine labourers in South Africa. The account of their findings throws light on certain subjects dealt with by the Plague Commission of 1898-99, and in view of the part

which Sir A. E. Wright had taken in the framing of the Commission's conclusions, the result of these authors' studies may be considered as supplementing the materials for a right understanding of the questions involved.

Accordingly, in the notes which follow, the points of divergence between the Commission of 1898-99 and myself which have come within the scope of the enquiry in South Africa have been gathered together and reviewed in consecutive order. Some of these points concern fundamental principles. I need hardly add that, in the years that have intervened, I continued to study attentively all the subjects on which the Commission of 1898-99 or any other experts had dissented from me, the present review is, however, limited to the items specified, on the grounds already explained.

The text of this note is divided into Sections according to the several subjects dealt with, and each Section is arranged, for facility of reference, under three heads, *viz.*, as follows—

Sub-division A refers to the information and views placed by me before the Plague Commission of 1898-99 and reported in the "Minutes of Evidence," Vols. I and III of their report ("Indian Plague Commission, 1898-99" Government Publication printed for Her Majesty's Stationery Office, Eyre and Spottiswoode, London, 1900),

Sub-division B contains the Commission's analysis and conclusion regarding the subject concerned, and is quoted from their "Report," Vol. V, issued in 1901, and

Sub-division C gives the result arrived at by Sir Almroth E. Wright and Drs. Morgan, Colebrook and Dodgson, in the course of their present enquiry as recorded in the "Report to the Witwatersrand Native Labour Association on the Results of an Inquiry into the Causation, Prophylaxis and Treatment of the Pneumonia which affects the Native Labourers, and in particular the Tropical Native Labourers in the Rand Mines—Observations on Prophylactic Inoculation against Pneumococcus Infections, and on the Results which have been achieved by it. By Sir Almroth E. Wright, M.D., F.R.S., in conjunction with W. Parry Morgan, M.B., Cantab., L. Colebrook, M.B., Lond., and R. W. Dodgson, M.D., Lond." *The Lancet*, 3rd and 10th January, 1914, pp. 1-10 and 87-95.

SECTION I

THE subject of this Section has been touched upon in my "Epidemiological Notes," dated Calcutta, October 1911, in which I had occasion to refer to inoculation against plague and remarked, with regard to the Indian Plague Commission of 1898-99, as follows—

"A general source of error was created by their rejection of the thesis established by the work of anti-

* *Vide* A. E. Wright and Surgeon Captain D. Bruce, "On Haffkine's method of vaccination against Asiatic Cholera," *British Medical Journal*, 4th February, 1893, pp. 227-231, and W. M. Haffkine, "Injections against cholera," *The Lancet*, 11th February, 1893, pp. 316-318. The latter paper was read by Dr. Ruffer at a meeting in the Conjoint Research Laboratories of the Royal Colleges of Physicians of London and Surgeons of England, where, in co-operation with him and with Professor Sims Woodhead and Dr. Cartwright Wood, I had demonstrated the principal experiments connected with the subject. The operations performed with Sir A. E. Wright and his then assistant, Surgeon Captain (now Surgeon General Sir David) Bruce and the Surgeons on probation at the Army Medical School in Netley were, however, of a more elaborate and detailed character, as may be seen from the first of the publications just mentioned.

† A. E. Wright and Surgeon Major (now Colonel Sir David) Semple, "On Vaccination against Typhoid Fever," *British Medical Journal*, 30th January, 1897, pp. 256-259.

plague inoculation, viz, that the treatment was effective in people who were already harbouring infection in their system, and that it was thus possible to influence an outbreak of plague in a few hours."

The statements which I had made to the Commission regarding this thesis are contained in the following quotations —

A

Passages in the evidence given to the Indian Plague Commission, on their 1st day's sitting the 29th November, 1898, concerning the effect of inoculation in the incubation stage of plague ("Indian Plague Commission 1898-99 Minutes of Evidence," Volume I pp 5 and 6)

(Section 34) "From the next morning (after the operations in the Byculla House of Correction, Bombay, where 154 prisoners out of a total of 337 had been inoculated) a difference appeared between the inoculated group and the non-inoculated

(Section 35) "The difference in their relation to the disease appeared the next morning"

"From the next morning after the inoculations there occurred altogether twelve cases of plague, of which six proved fatal, amongst the non-inoculated, and two cases, both of whom recovered, among the inoculated"

(Section 36) "The prophylactic was powerless to repress the symptoms of plague already started, or which developed within a few hours after inoculation

(Section 37) (*The President*)—"In that quantity?—Yes, in the quantity used. This conclusion was drawn from the fact that the only prisoners who did not seem to have benefited by the inoculation were the one who had a bubo at the time he came to be inoculated, and the two who developed undoubted symptoms of plague within a few hours after inoculation

(Section 38) (*Dr. Ruffer*)—"How many hours after inoculation?—The inoculations were performed between four and six o'clock (in the afternoon) and the buboes appeared the same evening"

(Section 44) "I repeat that the second conclusion drawn from the Byculla observations was that the prophylactic was powerless to arrest symptoms already started or which developed a few hours after inoculation

(Section 45) (*The President*)—"I understand that you mean in that dose?—Yes, certainly. The next deduction was that not only did the prophylactic do no harm to persons already infected, but that there was the possibility of its influencing favourably the disease in the incubation period in an individual infected three or four days previously. This conclusion was based on the following consideration. The examination of the occurrences which took place subsequent to the time of inoculation shows that day after day, with the exception of one day, the fourth after inoculation, cases of plague occurred among the non-inoculated group of prisoners. The incubation period of plague, according to the facts collected up to now, appears to be between two and ten days. A large proportion of the non-inoculated patients were, therefore, likely to have been infected already on the day when we dealt with the

prisoners. Such being the state of affairs in the non-inoculated group, and seeing that the inoculated had been living under the same conditions and had had the same chances of infection as the non-inoculated, I had ground to infer that a similar group had been already infected among the inoculated also at the time when they were inoculated. Under these conditions, the reduction of the number of cases and the suppression of deaths among them pointed to the possibility of inoculation influencing beneficially the disease in the incubation stage."

(Section 47) "The time necessary for the plague prophylactic to produce a useful effect is shorter than in any preventive treatment known, this period being in the anti-cholera inoculation four days, in vaccination against small-pox seven days, in the inoculation against anthrax twelve days, in the inoculation against rabies fifteen days, and in the present treatment apparently less than 24 hours. This conclusion was drawn from the fact that the beneficial difference between the inoculated and the non-inoculated appeared from the next morning after inoculation. The third question which was to be decided was, therefore, answered in this manner—the question was how long would the operation take to produce immunity? and the answer was, it required between 12 and 24 hours to do so."

(Section 48) "In sending these observations to the authorities I added the following remark—'The above conclusions are temporary and refer only to the teaching of the particular outbreak in question. There remains fully the possibility of further experiments compelling us to modify these conclusions, though the expectation is justifiable that the general bearing of the results as above detailed will remain unshaken'. The conclusions in question have, indeed, remained unshaken. In all the subsequent observations, the facts, collected under the strictest possible conditions, such as imitated the conditions of laboratory experiment to an extent probably not equalled in any other set of investigations, confirmed the deductions drawn from that first experiment"

The particular thesis here affirmed was demonstrated with great precision in a certain experiment at Undhera, in the Baroda territory concerning which the Commission republished a detailed report of mine to Government. In an address which I delivered at the Royal Society in London, on the 8th of June 1899 ("Proceedings of the Royal Society," Vol 65) and which the Commission made use of in discussing my evidence I described the result of the operations in the village in question as follows —

"Deaths from plague among the non-inoculated and the inoculated occurred after the following number of days had elapsed subsequent to the date of inoculation, viz —

| | |
|--------------------------|--|
| among the non inoculated | after 3, 4, 5, 7, 8,—10, 11, |
| | 12,—15, 16, 19, 20, 21, 24, 32, and 42 days, and |
| among the inoculated* | after ————— 9 ———— |
| | 12 and 14 ————— days |

"There had elapsed, therefore, eight days, during which eleven deaths from plague had occurred among the uninoculated members of the families, before the first death took place in an inoculated case. The inoculation had again acted, so to say, immediately, or, as we have adopted to formulate the result, had acted within the time necessary for the subsidence of the general reactionary symptoms produced by the operation."

* *Vide* the Commission's "Report" Vol V p 197 table summarising the events in the Byculla House of Correction. The dates corresponding to what is referred to in that table as "Mr. Haffkine's figures" are, as explained by me in a letter to the Commission, those on which the prisoners had fallen ill, the dates corresponding to what is mentioned as the "Official figures" are those on which the patients were transferred from the observation ward to the plague hospital, and were reported officially as plague occurrences in the jail. *Vide* the conclusion of the first quotation in part B of this Section, p 124 *infra*

* Half the members of each family had been inoculated

The Plague Commission, on its part, summed up the position during the first week of the epidemic in question in the following terms

"In Undhera, though plague continued among the un-inoculated at the rate of 10 cases in the first week after inoculation, there were among the inoculated two persons at most who can be regarded as having contracted plague at the time of inoculation" ("Report of the Indian Plague Commission," Vol V, 1901, p 256, section 461)

I further emphasized the thesis under consideration by separating (the Commission says, "excluding") the events which had occurred within the first twenty-four hours after the date of inoculation, from the events which had occurred subsequently. In this way, in recapitulating the facts of the Byculla Jail, I stated that there had occurred in the morning of the day of inoculation in non-inoculated persons, 6 plague cases and in the evening, in inoculated persons, 3 cases, *viz*, one in a man who had a bubo at the time of inoculation, and two cases in whom buboes developed a few hours afterwards. Separately from these nine cases I cited the events of the rest of the period of the outbreak

B.

The following are the Plague Commission's pronouncements with regard to the study of the Byculla Jail outbreak and the effect of inoculation in the incubation stage of plague (Vol V, p 197) —

"The second discrepancy relates to three patients who are excluded from consideration by Mr Haffkine in calculating his results on the ground that they had already contracted * plague at the time when the inoculations were performed. If, however, cases are to be excluded for the reason that the full incubation period had not elapsed between the date of inoculation and the date of attack, † we should, assuming that the incubation period may last as long as five days, omit not only the three prisoners omitted by Mr Haffkine, but also every one who was attacked up to the 4th February ‡. If this be done, and we think that it ought to be done, there would remain seven cases among the un-inoculated, with two deaths, contrasted with one case, which recovered, among the inoculated. The comparison would thus be greatly in favour of the inoculated. The results, however, do not seem to justify the conclusion drawn from them by Mr Haffkine that protection is acquired within 24 hours of inoculation, for during the first five days after the inoculation there were five cases among the inoculated as compared with four among the prisoners who remained un-inoculated,"

a statement arrived at by placing the cases under the dates of admission to the plague hospital, instead of under the dates on which they had fallen ill (*vide* footnote on p 123 above)

* Should be "developed"—W M H

† For stating my reason (as quoted above) the last words should be 'had elapsed prior to the time of inoculation'—W M H

‡ In pursuance of my procedure (*vide* end of 'Section 47' quoted on p 123 *supra*) only those who were attacked within 24 hours after the date of inoculation were to be "omitted"—W M H

Page 255, section 461 "We have now to consider the possibility that certain of the less favourable results shown in the tables which are now under discussion may be due to the assignment to the inoculated of attacks and deaths due to infection contracted shortly before or shortly after inoculation

The experiment in the Byculla Jail is of particular interest in this connexion. If we compare the number of attacks that occurred among the un-inoculated and the number among the inoculated from the date of inoculation, we find that there was a percentage of 6.9 and 3.9 cases, respectively, among these two classes, giving a ratio of 1.8 to 1. But if, allowing 5 days for the incubation period, we exclude all cases that might have been incubating plague at the time of inoculation, we arrive at the results which have been tabulated above, and which give a ratio of 6.6 to 1" (P 256, sections 462 and 463). "In view of the short incubation period of plague and in view of the fact that our experience in the case of other diseases, both in animals and men, indicates that protection is not at all rapidly established, it seems to us unlikely that the anti-plague inoculation can exert any favourable influence on persons who are already incubating plague. The matter, however, is one which can be definitely determined only by scrutinising the records of actual observation to ascertain how soon protection becomes established. We have, therefore, endeavoured to gather indications regarding this matter from the evidence laid before us

"It would seem possible to test how soon protection is achieved by determining what percentage of the total attacks among the inoculated are attributable to each successive day or week after inoculation. We may consider first what details are necessary to apply this test. If we are dealing with a group of persons all inoculated on the same day, we should require to know the number of inoculated persons composing the group, the period for which they were kept under observation, and the number of cases that occurred among them in each day or week of the period of observation. It would, moreover, be necessary to know to what extent plague continued among the un-inoculated during each day or week throughout the period of observation, in order to determine whether the inoculated in the concluding days or weeks of that period were or were not exposed to less infection than those in the earlier days or weeks. We could then calculate out the daily or weekly percentage of attacks, for the first day or week, on the original number of inoculates, and, afterwards, on the number of those remaining over unattacked on each day or week. A comparison of the percentages which occurred later would give the required information as to the date on which protection was achieved. When the results of a series of inoculations done on successive days in one community are in question, the same particulars regarding each successive group of inoculates will be required. That is not the method that has been adopted in the preparation of the statistics placed before us. The method adopted has been to bring the period of observation for a number of successive groups of inoculates to a conclusion on one and the same day, to sort out the cases that have occurred before that day into groups according to the length of time after inoculation at which they occurred, and then to compare the numbers of attacks in different days or weeks with a view to drawing conclusions with regard to the protection achieved at varying periods after inoculation.

* The operations in the Byculla House of Correction and in Undhera were, in either case performed at one sitting. The particulars enumerated by the Commission formed part of the description of the experiments in question—W M H

This method^a leads to erroneous results. How erroneous these results may be will be manifest when we consider what would be the effect of applying the method to an extreme case. In such an extreme case as that of a community composed of two groups of inoculates, inoculated on two days separated by a considerable interval of time, if the period of observation was brought to a close within, let us say, a week after the second series of inoculations, it is plain that the ratios which the percentage of attacks occurring in the first week after inoculation would bear to the percentage of attacks occurring in weeks remote from the dates of inoculation would be vitiated by the fact that the figures for the first week would include the cases that occurred in both groups of inoculates, while the figures for the subsequent weeks would exclude the attacks that might have occurred among the second group of inoculates after the date on which the period of observation was brought to a close."

C

The portion in Sir A. E. Wright and Dr. Morgan, Colebrook and Dodgson's Report which bears on this subject contains a table (see below) showing the results of inoculations with various doses of pneumonia bacilli (*The Lancet*, January 10th, 1914, p. 91.)

The authors make the following comments on these results —

"The facts which are set forth in the table are, as will be seen, very remarkable. Associating together the figures which apply to Groups A, B, D, and E, i. e., the groups which received doses up to 1,000 millions of pneumococci, we find that, in the first four days after

inoculation, 2,500 inoculated had an incidence-rate of 0.52 per cent, and a death-rate in connexion with these cases of 0.16 per cent, while 750 controls had an incidence-rate of 1.4 per cent, and a death-rate in connexion with these cases of 0.84 per cent. In other words, the uninoculated had an incidence-rate nearly three times and a death-rate five times greater than the inoculated.

"Again, associating together the figures which relate to Groups C and F—groups which received doses of over 1,000 millions of pneumococci—we find that 3,200 inoculated had for the same period an incidence-rate of 1.1 per cent, and a death-rate in connexion with these of 0.32 per cent, while 800 controls had an incidence-rate of 0.4 per cent, and a death-rate also of 0.4 per cent.

"Two important conclusions follow. The first is that pneumococcus inoculation undertaken with doses up to 1,000 millions had a marked effect in aborting pneumonia and in diminishing the case mortality. Or we may phrase it otherwise. Vaccine therapy as applied to the treatment of pneumonia is successful when doses of 250 to 1,000 millions are given in the incubation stage of the disease. The second conclusion is that inoculation undertaken with doses of over 1,000 millions of pneumococci may perhaps temporarily increase the incidence-rate of pneumonia.

"It is perhaps of interest to point out that these conclusions are essentially the same as those formulated in connexion with plague vaccine by Mr. Haffkine, immediately after he had carried out his first mass-experiment in the Byculla Jail, Bombay, in 1898. In that experiment, as in the mass-experiment we are here dealing with, a decisive difference in favour of the inoculated half of the population manifested itself already within twenty-four hours. And the view that

* Not employed by me in any of my studies.—W. M. H.

* In January, 1897.—W. M. H.

TABLE XVIII

| | | NUMBER OF CASES OF PNEUMONIA WHICH DEVELOPED | | | | | | | | | | | | | |
|--|-----------------|--|--------|------------|--------|-----------|--------|------------|--------|-----------|--------|-----------|--------|----------------|--------|
| | Number in group | FIRST DAY | | SECOND DAY | | THIRD DAY | | FOURTH DAY | | FIFTH DAY | | SIXTH DAY | | FIRST SIX DAYS | |
| | | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths |
| | | | | | | | | | | | | | | | |
| Group A (inoculated with 250 millions) | 646 | | | | | 1 | 1 | 2 | 1 | | | | | 3 | 2 |
| Control group | 626 | 1 | 1 | 4 | 1 | 3 | 1 | 2 | 2 | | | 2 | 2 | 12 | 7 |
| Group B (inoculated with 500 millions) | 759 | | | 2 | | 1 | 1 | | | 3 | 1 | 1 | | 7 | 2 |
| Control group | 764 | 1 | 1 | 5 | 2 | 3 | 1 | 2 | 2 | | | 2 | 2 | 13 | 8 |
| Group C (inoculated with 1,250 millions) | 1,582 | 8 | 4 | 2 | | 1 | 1 | 1 | | | | | | 12 | 5 |
| Control group | 791 | 1 | 1 | 2 | 2 | | | | | | | 1 | | 4 | 3 |
| Group D (inoculated with 500 millions glucose vaccine) | 463 | 1 | 1 | | | 1 | | | | | | | | 2 | 1 |
| Control group | 457 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 1 | | | 2 | 2 | 10 | 6 |
| Group E (inoculated with 1,000 millions glucose vaccine) | 650 | | | 1 | | 2 | | 2 | | | | 1 | | 6 | |
| Control group | 595 | 1 | 1 | 4 | 2 | 3 | 1 | 1 | 1 | | | 2 | 2 | 11 | 7 |
| Group F (inoculated with 2,500 millions glucose vaccine) | 1,582 | 7 | 3 | 11 | 2 | 1 | 1 | 3 | | 2 | 2 | | | 24 | 5 |
| Control group | 791 | 1 | 1 | 2 | 2 | | | | | | | 1 | | 1 | 3 |

Mr Haffkine maintained (in contravention to that held by one of us) that plague vaccine does not produce a negative phase, and that it has the power of aborting an incipient attack, was afterwards established by evidence accumulated by Miss Alice Cothorn, M.D., and Surgeon-General W B Bannermann, I.M.S. In connection with this, all that requires to be said is that the generalisations in Section II of this Report—generalisations which have been reached only after years of further work—have made it intelligible that a negative phase should manifest itself with large doses of typhoid vaccine,* a vaccine which is easily broken down in the normal organism, and again with all vaccines after the organism has, by foregoing immunising response, acquired bacterioclastic power, and that this phase should make default in the uninfected organism, and in the early stages of infection when vaccines, such as plague vaccine and pneumococcus vaccine,† which are with difficulty broken down in the body, are inoculated

SECTION II

In the quotation given in the preceding Section Sir A E Wright and Dr Morgan, Colebrook and Dodgson suggest, for the first time, so far as I am aware that by the term "*vaccine therapy*" should be designated that form of vaccine treatment the effects of which were described in my above quoted evidence to the Plague Commission of 1898-99, *viz the treatment by vaccine of patients in the incubation stage of the disease*. The notes which follow refer to the extension of that treatment to patients in whom infection has progressed beyond the incubation stage and is manifested by morbid symptoms

A and B

On page 123 above are reproduced my statements to the Commission regarding the effect of inoculation when applied to a person very shortly before or very shortly after the appearance of plague symptoms, as compared with its effect when applied *prior* to the last stages of incubation, also the President, Sir T Fraser's queries concerning the doses to which

* *Vide supra* the statement as to the effect of large doses of pneumococcus vaccine.—In carrying out the work of anti typhoid inoculation, the operators introduced, amongst other particulars forming departure from my procedures, a certain formula for determining the volume of the dose, which the Plague Commission defined as "the quantity of broth culture which is lethal for 100 grammes of guinea pig" (Volume V of their Report page 183, section 395) My remarks on this plan were made in a Report to Government, No 1269 of 9th August 1900, "On the present condition of manufacture of the plague prophylactic in the Plague Research Laboratory," Government Central Press, Bombay, 1900, pages 14-17. It was seen shortly afterwards that the dose, as above defined was apt to cause to the inoculated an increased, instead of reduced, incidence of typhoid, that is, in the terms of the statement quoted above, to produce "a negative phase". Subsequently, a special "Anti Typhoid Committee" appointed at the War Office, and of which Sir Almroth E Wright at first formed part, modified the procedure as regards the dose and certain other particulars, and the inoculations, which had been suspended by the orders of the War Office, were resumed (Conf Sir W B Forsterman, "Anti Typhoid Inoculation," *Journal of the Royal Inst. of Public Health*, July, August and September, 1910, and "Report of the Anti Typhoid Committee, 1912," His Majesty's Stationery Office London)—W M H

† *Vide* in reference to these conclusions, the facts mentioned in the paragraph before the last, and the second conclusion in the last.—W M H

my statements referred and my replies that they referred to doses effective when used prior to the final incubation stages

The relative position of these two applications of 'vaccine treatment' and my attitude on the subject were indicated in a further query by the President and in my reply to it, which were as follows (Volume I of the Commission's report, page 12, Section 79) —

(The President) — "Have you any definite reason to suppose that your substance is not purely therapeutic as well as preventive or prophylactic?—No, Sir. I have not subjected this question to any accurate examination, but the general impression which I have had up to now is that the inoculation is not likely to influence the course of the disease when symptoms have already started."

I described to the Commission what I considered an accurate examination of such a question (or, as I expressed myself on that occasion, what I thought to be "the only reliable method for finally testing a curative treatment") I had subjected to such a test a serum prepared on the plan of Dr Yersin's curative serum for plague, and I stated concerning this as follows (Volume I, page 14, Sections 140-141) —

"We (my assistant and myself) visited the hospital daily, from the early morning, and took the name of every new patient admitted. With the exception of those who died within an hour or a few hours, that is before we could attend to them, we treated with plague antitoxic serum every second patient admitted during the hours we were at the hospital, irrespective of the information as to the serious or promising condition of the patient, or the duration of the disease before admission. Without selecting patients according to our personal impressions or according to the statements supplied by the medical officer or by the patient or his relatives, we subjected to the treatment every second arrival. After about two hundred patients had passed into the hospital, we compared the mortality statistics among the treated and among the non-treated. I expect it was an accident, but the mortality among the treated was higher than among the non-treated. The moment this became clear, we suspended further treatment. I consider this the only reliable method for finally testing a curative treatment. We suspended the treatment in Poona where we had injected considerable doses of the serum. Further attempts were made in Bombay with some "homœopathic" quantities—injecting 1 to 5 c.c. of serum, or so."

We varied the treatment in many ways. For instance, a patient would receive only 1 c.c., or he would receive that amount repeatedly, every five hours, or again he would receive a dose of 10 c.c. once in two days. The patients were always observed comparatively with others admitted at the same time. In no case did we find a noticeable advantage on the side of the patients treated."

As regarded the *prophylactic inoculation*, the beneficial effects obtained from it in the incubation stage, in the case of a disease of such rapid course as the plague, led me to admit the possibility of profitable results from it also in ailments actually developed, but having a long-standing, non-acute character, while some of my co-workers were induced to try the method even in the case of acute ailments. The queries of

the President of the Plague Commission indicated that, on his part, he was inclined to believe in the possibility of good effects in the case of developed plague

Soon after the Commission returned to England preparatorily to the publication of the report from which the quotations on page 124 above are made—*viz*, in October, 1900—Sir A E Wright began to apply the thesis therein dealt with as a principle of therapeutic practice,* and since then, under the name of "vaccine-therapy," the plan has been extensively used, in all infectious diseases

C

In their present enquiries on pneumonia, Sir A E Wright and Drs Morgan, Colebrook and Dodgson have, for the first time since its introduction, submitted this form of vaccine treatment to the test described above in connexion with the studies of Yeisin's serum† They state the results as follows (*The Lancet*, 10th January 1914, page 87) —

"It will be well to realise at the outset under what disabilities of ignorance we here pursued our work. The methods of blood examination which so often disappointed us when we were endeavouring to compare from day to day the opsonic power of the inoculated with that of the uninoculated natives, left us quite in the lurch when we set ourselves to make similar daily measurements in the case of our pneumonia patients. We were unable to trace, upon the fifty immunisation curves which we plotted out in connexion with this work, the effect of the doses of vaccine which we administered

"Accordingly, from first to last, we had to guide ourselves in our choice of doses and of the intervals between our doses only by *à priori* considerations, and by the uncertain and flickering light which is furnished by temperature charts and the clinical symptoms. Influenced by the anticipation that the infected natives would be much more sensitive to pneumococcus vaccine than the uninfected natives, we employed only doses of $2\frac{1}{2}$ to 50 millions of pneumococci, and we conformed to the principle of giving in the less serious conditions larger, and in the more serious ones smaller, doses. In the ordinary case we repeated the dose at intervals of twenty-four to forty-eight hours

"These experiments—they have only the value of properly controlled reconnoitring experiments—were carried out in the hospital of the Witwatersrand Native Labour Association on tropical native patients. Many of these were, when admitted to hospital, already in an advanced stage of pneumonia. We accepted for our experiments only those who presented quite typical physical signs, and these were taken for treatment by vaccine-therapy or for treatment by the expectant method, alternately, and strictly in the order in which they were admitted to hospital. We took for every uninoculated patient who was treated by vaccine-therapy an uninoculated control, and for every inoculated patient an inoculated control

"As the net effect of our treatment, we obtained the results which are set out in the sub-joined table —

"TABLE XI

"Showing the Case Mortality of Pneumonia in Tropical Natives treated respectively by repeated Small Doses of Pneumococcus Vaccine and by Expectant Methods

| Therapeutic method employed | Number of cases | Number of deaths. |
|-----------------------------|-----------------|-------------------|
| Vaccine therapy | 159 | 50 |
| Expectant treatment | 149 | 48 |

"We would in connexion with these results specially emphasise (1) that they apply only to tropical natives who, having a very low power of resistance, have contracted virulent infection, and (2) that they apply only to inoculations carried out on such natives with the doses specified above"

Page 92 "In connection with the vaccine-therapy of pneumonia we have, on the one hand, the fact that inoculation in the form of small doses frequently repeated was absolutely ineffective (Table XI), and, on the other hand, the fact that inoculation in the form of a single large dose, administered in the incubation period, often arrested the disease and averted death (Table XVIII)

"That the difference of dose determined the difference of event, is to us as good as certain† Let us—recalling to mind the general propositions formulated in Section II—here take note of the fact that the doses which we found inoperative were doses from which there could, at best, have been expected that they should elicit a local immunising response. Further, let us note that the evocation of such response would be dependent upon a sufficiency of antigen passing into solution in the lymph at the seat of inoculation

"Lastly, let us note that it is quite likely that microbes which are ingested by phagocytes may, from the point of view of the immunising reaction, be left quite out of regard. In connexion with this it is almost superfluous to point out that when comparatively small numbers of microbes are inoculated, and when they come into contact with a lymph which possesses opsonic power, but only inappreciable bacterioclastic power, they will almost certainly sooner or later be ingested by phagocytes

"In general contrast with all this would be what would happen when a large dose of vaccine is inoculated. In this case the microbes would be carried on into the main lymphatic current or blood-stream, with the result that inevitably some of these would escape phagocytosis, and inevitably some of these would, even if the blood had but very little bacterioclastic power, be broken down. And there would supervene upon the convection of the antigen to the tissues through the blood a systemic immunising response

"As we see no reason to suppose that the conditions appreciably alter, and as we know that the bacterioclastic power of the blood does not sensibly increase when pneumonia develops, we think it reasonable to expect that the favourable results which were obtained by the inoculation of doses of 250 to 1,000 millions of pneumococci would repeat themselves if this treatment were applied in the early stages of pneumonia"

SECTION III.

A and B.

THE present Section concerns a subject which, though not clear to me at the time, I was obliged

* Vide *The Lancet*, 10th January, 1914, p. 92, reproduced below, and A E Wright, 'Notes on the treatment of Furunculosis, Syphilis and Acne,' *The Lancet*, 29th March, 1902

† Vide Part II of this Memoir.

* Reproduced on p. 125—W M H

† Vide Sir Thomas Fraser's queries on p. 123 *supra*—W M H

to refer to in a certain report to Government dealing with the inoculations in the Khoja community of Bombay. The Indian Plague Commission, in discussing the report in question, constructed from a portion of its data a table of which it says (Vol V pp 209 and 210) —

"This table shows that among the inoculated deaths from plague were $12\frac{1}{2}$ times less numerous, and deaths from general causes were 19 times less numerous than among the uninoculated. *Prima facie*, therefore, it would appear that Mr Haffkine's anti-plague inoculation protects against plague, but that it protects more against ordinary diseases. This result is so striking and so difficult to accept that we first addressed ourselves to the task of enquiring whether the inoculated were a picked body, and whether the uninoculated contained a large proportion of the sick and feeble, and of the very young and very old. Surgeon-General Harvey, I.M.S., who made a special personal enquiry into the results of the inoculations performed in the Khoja community, was of opinion that, in the main, the explanation of the disproportion between the deaths from general causes among inoculated and uninoculated Khojas must be sought in the assumption that in many families the sick, the weak, the elderly people, and the children, did not present themselves for inoculation, and that only the strong and healthy undergo the operation. In view of this opinion† we have tested the proportion in which the different age groups were represented among the inoculated and the uninoculated Khojas respectively. These percentages indicate that in point of age at least, the two communities were not sensibly incomparable. In view of these percentages the next point to determine was whether the excessive mortality from general causes assigned to the uninoculated was really due to excessive deaths in any particular class of the uninoculated community. From this table it will be apparent that excessive mortality from general causes occurred in all three classes of the uninoculated community (*i.e.*, in children under seven, persons of intermediate age, and old people of 61 and over). In view of the facts that are thus summarised here, Mr Haffkine sums up the case of the Khojas in his Report as follows — 'After making all allowances for inaccurate classification of deaths in the uninoculated group, with which the inoculated are being compared, and admitting that a part of the excess of deaths in the uninoculated may be due to a certain number of sickly people having abstained from inoculation, the result still contains an indication that, besides the protection against plague, this inoculation influences also favourably the resistance to certain other diseases than plague. We find ourselves in agreement with Mr Haffkine in holding that the difference in mortality among the inoculated and uninoculated cannot be fully accounted for, either by the excess mortality of the uninoculated children and old people, or by the incorrect assignment of plague deaths among the uninoculated to general causes. Therefore, there remains to be considered, of the explanations offered by Mr Haffkine, only the suggestion that his anti-plague inoculation exercises a protective influence against diseases other than plague. This question is discussed elsewhere in the Report‡. We cannot,

however, accept Mr Haffkine's view that the low mortality among the inoculated can be accounted for on this hypothesis. It seems to us very probable on consideration of all the circumstances that the figures of mortality which have been given above must be accounted for by assuming that deaths which occurred amongst the inoculated were wrongly assigned to the uninoculated."

The Commission's ultimate statement on the subject was as follows (Vol V, p 261, section 469) "Only one question now remains to be dealt with in connexion with the influence on the organism exerted by Mr Haffkine's anti-plague prophylactic fluid. This question relates to the suggestion, to which we have already referred that anti-plague inoculation protects not only against plague but also against other diseases. This suggestion emanated from Mr Haffkine. It appears that in the course of his inoculation work a certain number of cases were brought to Mr Haffkine's notice in which fevers of an undetermined nature were favourably influenced by the injection of his vaccine. An idea that anti-plague inoculation might possibly protect against other diseases having thus suggested itself to him Mr Haffkine proceeded to seek in this idea an explanation for the extraordinary absence of mortality from general causes which was noted in the case of the Khojas inoculated in Bombay. We have however pointed out that the exceptionally light mortality recorded for the inoculated Khojas is capable of being explained in quite a different way. What we have just said applies not only to the case of the Bombay Khojas, but also to the case of the inoculated Karachi Khojas, among whom there was a similar extraordinary absence of deaths from general causes, which was similarly

* This view, and not the one quoted above, had originally been held by Surgeon General Harvey I.M.S. On 7th August, 1898, after first perusing my Khoja Inoculation Report, he wrote to me from Simla in conjunction with the late Lieutenant Colonel J. T. W. Leslie, I.M.S. (subsequently Sanitary Commissioner with the Government of India) as follows: "There must be a fallacy somewhere unless you have unconsciously hit upon the *Ehru vira*. It seems to me that your figures make the uninoculated accountable not only for their own proper deaths, but for those among the difference between the total ultimately inoculated and the mean daily average of such." In March the following, upon my suggestion, he came to Bombay made a detailed enquiry, which lasted several days, in the Khoja quarters of the town, and ascertained that the view in question was not tenable. His statement to the Commission after this investigation was as follows ("Minutes of Evidence," Vol III, p 347, sections 26, 435) "I think that the records of the community are kept in a much more full and proper way than those of any average people. Several points have come out in addition to the fact that the records are correct. We know, I should think, with practical accuracy from the Jamat books, those who have been inoculated and those who have not, so that we can get a very fair index as to the mortality among the two classes." "I find that the original investigation of Professor Haffkine was one which involved an enormous amount of energy and thought. Although it is a very short report (see App No IV in Vol I of these Proceedings), the amount of work involved in it was enormous." Surgeon General Harvey's statement concerning the Jamaat records referred to, as he mentioned, to the assignment of deaths among the inoculated and the non-inoculated and not to the recognition of the causes of deaths — W. M. H.

* My own analysis pointed approximately to a proportion of .96 and .38 as against the Commission's $12\frac{1}{2}$ and 19. Subsequent consideration has shown me that the figure relating to general causes (.38) required to be further reduced and that relating to plague (.96) correspondingly increased — W. M. H.

† Vide foot note on next column. — W. M. H.
‡ Viz., on p 261, reproduced here in the next paragraph — W. M. H.

attributed to the effects of inoculation. The instances which have been just referred to constitute the only statistical evidence which has been brought forward in support of Mr Haffkine's claim that his vaccine favourably influences diseases other than plague. As this statistical evidence is untrustworthy, we have to fall back on *a priori* considerations, the two isolated instances which Mr Haffkine has adduced of cases of fever favourably influenced by inoculation, and a few other isolated instances adduced by other witnesses. According to the more or less indefinite statements of the two or three witnesses who are in question, the plague prophylactic is capable of favourably modifying every possible class of disease, from ringworm to leprosy. It is obvious that statements of this kind are not deserving of serious attention. That vaccination against one disease may influence the course of another is, however, *a priori* quite credible, inasmuch as it is known that one disease may influence the course of another. But since no trustworthy evidence has been adduced before us to show that this obtains in the case of anti-plague inoculation, the suggestion, though one that might be kept in view by future observers, need here no longer engage our attention."

C

The Report under consideration, by Sir Almroth E Wright and Drs Morgan, Colebrook and Dodgson, does not refer to the Khoja investigations, but contains the following statements —

The Lancet, January 10, 1914, p 91 "In concluding this account of the results obtained in mass-experiment No 5, we may profitably advert to one more general consideration. It is, as will presently be brought out more fully in Section V, reasonable to expect that an effective inoculation will give an additional bonus in the form of a diminution in the morbidity which comes upon the record under the heading of 'Other Diseases'. In point of fact, the records which relate to the particular mass-experiment we are here discussing show such a reduction. We have our bonus in the form of a 15 per cent reduction in the 'other diseases' of the inoculated, the figures being *inoculated*, 6,224, *uninoculated*, 1,545. Cases of sickness other than pneumonia: *in inoculated*, 2,154, *in uninoculated*, 620.

"We now pass to our 6th and last mass-experiment."

Page 92 "In connection with the mass-experiment here in question (the 6th and last mass-experiment), we may give the figures for the corresponding period relating to the incidence and death-rate of 'other diseases' in the inoculated and uninoculated sections of the population. These figures are as follows: *Inoculated*, average daily strength, 9,909, incidence rate, 47.2 per cent, death-rate, 0.93 per cent. *Uninoculated*, average daily strength, 4,520, incidence rate, 106.6 per cent, death-rate, 1.90 per cent."

In connection with the same "mass-experiment No 6" the authors give on p 94 the following table —

"TABLE XXI

"Showing for the Whole Native Population of the Premier Mine the Incidence and Death Rate for Pneumonia, the Incidence and Death-Rate for 'Other Diseases', and also the number of working Days Lost through Illness, for the months February to May* in 1911, 1912, and 1913, respectively

| | 1911 | 1912 | 1913 |
|--|--------|-----------|-----------|
| Population (daily average strength) | 10 426 | 12,549 | 15,284 |
| Proportion of the population inoculated | 0 | About 50% | About 92% |
| Incidence rate of pneumonia | 4% | 1.28%† | 0.74%† |
| Death rate from pneumonia | 0.97% | 0.31% | 0.14% |
| Incidence rate of other diseases | 31% | 20.7% | 14.4% |
| Death rate from other diseases | 0.51% | 0.35% | 0.34% |
| Number of working days lost per hundred native labourers | 275 | 177 | 131 |

* We have been furnished with data for this comparison only up to May 1913."

† In 1912 the incidence rate was 0.86 per cent for the inoculated and 1.7 per cent for the uninoculated. In 1913 it was 0.6 per cent for the inoculated and 3 per cent for the controls."

SECTION IV

THE subject referred to in the present Section and in the one which follows concerns *the procedure for estimating numerically the effects of inoculation*.

A and B

In making out *the plague ratios* for the inoculated and the non-inoculated in certain epidemics, *viz*, in Lanauhi and Kirkee, where the inoculations had been carried out, early in the outbreak, during a succession of days, I referred the incidence of the disease to the mean daily strength of the population. The Commission stated regarding this procedure that "very considerable complications are introduced when the incidence of plague has to be calculated on the average instead of upon the absolute strengths" (Vol V, p 203), "the comparison which Mr Haffkine has made is unduly to the disadvantage of inoculation" (p 205), "his calculation gives a slightly lower value for inoculation than that obtained by the calculation on absolute strengths. The result is as close an approximation as can be expected in applying the complicated method of calculating on averages to figures of an individual epidemic which are to a large extent the result of undetermined causes" (p 207). In drawing up a "Synoptical Table" of the results observed in various epidemics, the Commission, therefore, definitely put aside my figures based on average strengths, and re-calculated the results upon ratios based on absolute strengths of population (Vol V, p 251).

C.

In their present publication, Sir A E Wright and Drs Morgan, Colebrook and Dodgson give an analysis of "a detailed synopsis of results" obtained in a part of their operations in South Africa, and base all calculations from that synopsis on the "*Daily Average Strength of the Group*," the "*Daily Average Population*," the "*Average Daily Strength*" (table XIX and text, p 92 of *The Lancet*, January 10, 1914), or the "*Population (daily average strength)*" (table XXI on p 94)

SECTION V

A

APART from the matter of ratios, the Commission differed from me as regarded the process which I had introduced for *calculating the protection obtainable from inoculation*. In studying epidemics from this point of view, I defined the question for enquiry thus: What percentage of plague cases and deaths had been averted by inoculation? The answer is supplied by the following formula, viz —

$$100 \left(1 - \frac{P_n C_i}{P_i C_n}\right),$$

where P_n and P_i represent the non-inoculated and inoculated portions of the same population, and C_n and C_i , the casualties observed in them

B

The Commission expressed the view (Vol V, p 252, section 454) that the above mode of enquiry was

"likely to give rise to misunderstanding, especially when it is made, as it has been by Mr Haffkine, the basis for such a general statement as the following — 'One can say in a general manner that the reduction in mortality, produced by inoculation, is between 80 and 90 per cent' Such a statement, taken apart from the actual figures, might be taken to imply either that inoculation had averted death from 80 to 90 persons (a) in every 100 of the total population, or (b) in every 100 of the inoculated population, or (c) in every 100 inoculated persons attacked, whereas the statement really means that death was averted from 80 to 90 in every 100 of those who, without inoculation, would, judging by the mortality among the uninoculated, have died of plague." "With a view to avoiding such fallacies we have expressed our results in a form that is not open to these objections. In column 10 of our table, we have set forth the ratio in which the deaths among the uninoculated stand to the deaths which actually occurred among equal numbers of the inoculated"

C

In the publication under review the authors have, throughout their analyses, resorted to the calculation and used the verbal expressions criticised to by the Plague Commission, and have on no occasion stated the results in the form substituted by the Commission for mine. Thus, on p 91 of *The Lancet*, January 10, 1914, they

refer, as already quoted, to "a 15 per cent reduction in the 'other diseases' of the inoculated, the figures being *inoculated*, 6 224, *uninoculated*, 1,545, cases of sickness other than pneumonia in *inoculated*, 2,154, in *uninoculated*, 620"

The "15 per cent reduction" here mentioned, or, more precisely, 13 76 per cent, is the result of calculation summed up in the above quoted formula, 1 16 being the figure which would have resulted from the procedure proposed by the Plague Commission

On p 93 of *The Lancet* the authors give the results of "mass-experiments" Nos 1, 3, 4, 5 (E), and 6, as "a reduction of 37 5 per cent in the death-rate of the inoculated", "a reduction of 31 per cent in the death-rate of the inoculated", "a reduction of only 10 per cent in the incidence-rate and of 34 per cent in the death-rate", "a reduction of 35 per cent in the incidence and 55 per cent in the deaths" (the latter result being referred to shortly before as "a maximum reduction of 50 per cent in the death-rate of the inoculated"), and "a reduction in the incidence-rate of 50 per cent, or 58 per cent, and a reduction in the death-rate of 52 per cent, or 61 per cent" (the latter reduction being referred to previously as "a reduction of 60 per cent in the death-rate for the inoculated")

These results have been calculated by the authors in the manner summed up in the formula quoted on page 29, the precise figures being respectively 39 38, 28 09, 12 43, 34 32, 35 28, 54 23, 50 38, 58 03, 51 55 and 61 16 per cent. According to the procedure substituted for mine by the Plague Commission, the effect of the inoculations would have been expressed in ratios of 1 65, 1 39, 1 14, 1 52, 1 54, 2 18, 2 01, 2 38, 2 06 and 2 57, respectively

SECTION VI.

THE foregoing notes refer to subjects on which the Indian Plague Commission of 1898-99 dissented from me, and concerning which Sir A E Wright and his co-workers, Drs Morgan, Colebrook and Dodgson, have arrived at results agreeing with mine

The Report under examination contains no findings of an opposite bearing, that is, among the matters that came within the authors' purview, there were no subjects on which they found that my conclusions required modification

I propose, therefore, to complete this review by mentioning the same authors' finding on one further matter, which did not come under the consideration of the Indian Plague Commission of 1898-99, but on which other experts, called upon to advise on the plague, differed from me

The matter concerns, indirectly, an opinion which I expressed in Poona, in January 1898,

to the effect that, independently from their mode and conditions of life, *certain human races*, like Europeans, Egyptians, Somalis, Kaffirs, perhaps also Arabs and the Felaheen, *appeared less receptive of plague than others*, the Chinese or Indians, for example, while in some respects, *eg*, in regard to typhoid fever or the effects of the sun, the mutual position of Europeans and Indians appeared the reverse of the above. In an address delivered by me, in December 1907, before the Royal Society of Medicine in London, and entitled "On the present methods of combating the bubonic plague,"* the subject of racial differences in regard to plague was referred to in 5 of the 6 following propositions which were advanced by me on that occasion, *viz* —

"(1) That in natives of that country (India), who are more susceptible to the disease than Africans, Europeans and some other races, the inoculation now in force in India reduces the liability to attack to less than one-third of what it is in a non-inoculated Indian

"(2) That in the one-third of cases which still occur, the recovery rate is at least double that in the non-inoculated attacked, the ultimate result being a reduction of the plague mortality by some 85 per cent of what it is in non-inoculated Indians

"(3) That in an inoculated European an attack of plague, if it subsequently occurs, has so far always ended in recovery

"(4) That the inoculation is applicable to persons already infected and incubating the plague, and prevents the appearance of symptoms, or else mitigates the attack, a fact which disclosed a basis for bacterio-therapeutic treatment of diseases

"(5) That in Natives of India the degree of immunity conferred by this inoculation, though gradually vanishing, seems to last during several outbreaks of plague, and that

"(6) In Europeans the effect of inoculation has not yet been seen to disappear in the space of time, since 1897, that this inoculation has been under study"

The present publication by Sir A E Wright and Drs Morgan, Colebrook and Dodgson contains, on p 10 of *The Lancet*, January 3, 1914, statements as to differences observed in Europeans and Africans in regard to the effect of germs on their respective bloods, the authors' conclusion being that the Africans have an advantage over Europeans as regards natural resistance to microbes of abscesses and suppuration, while Europeans have an advantage over the Africans as regards similar resistance to pneumonia. On p 95 of *The Lancet*, January 10, 1914, the authors sum up their finding as to the germ of the latter disease by saying that "the blood of the African native is, so far as relates to its power of phagocytosing and killing the pneumococcus, very inferior to that of the European, and that the capacity for immunising response is also much less in the African than in the European"

In connection with the above remarks, I would mention that, soon after the present epidemic

had spread over the plains of India, and shortly before the Commission of 1898-99 began their work, *viz*, in June, 1898, I endeavoured to obtain a modification of the general measures devised against the plague, in favour of persons who had undergone preventive inoculation

The modification in question was indicated by the analysis of the main features of the outbreak, which showed that, for vast masses of the population exposed to the disease, *personal immunisation was the only accessible means of protection*

I recognised at the time that the policy advocated was going to be unavoidably retarded by the existing divergence of views, and would be adopted only after a prolonged expenditure of effort in many other directions

These conclusions, regarding the measures for protecting the population in the plague epidemic areas, are now admitted, I believe, by many authorities; and the publication with which the present notes are concerned is some sign that unanimity is attainable also on questions regarding the nature of the prophylactic inoculation. Further progress is required, however, in many directions.

(To be continued.)

STUDIES IN MALARIA.

By HUGH STOTT, M B,

CAPTAIN, I M S,

Surgeon to His Excellency the Governor of Madras

PART III—Continued

(Continued from page 91, March 1915)

PRACTICAL VALUE OF A PARASITE SEARCH

It is in my opinion too often assumed that the detection of the parasite in a film of malarial blood is a simple procedure and of easy accomplishment. A negative search is too often considered of sufficient importance to influence the future treatment of the case, be the clinical indications what they may

True, in a good and well-stained parasite-containing film, the detection is simple—and true it is that such a perfect film may be obtained by minute attention to each step in its preparation, but one flaw in the chain may render the search for parasites extremely hard or indeed obscure it altogether

The crux of the whole question lies in the perfect technique adopted in regard to the spreading, manner of fixing, and the staining of the film. Of these three points the first two require the most detailed personal supervision. Moreover it is these two points which are so often left for others to perform who probably have not the requisite interest or knowledge to satisfactorily carry them out. With an unclean slide,

* Proceedings of the Royal Soc. of Med, January, 1908

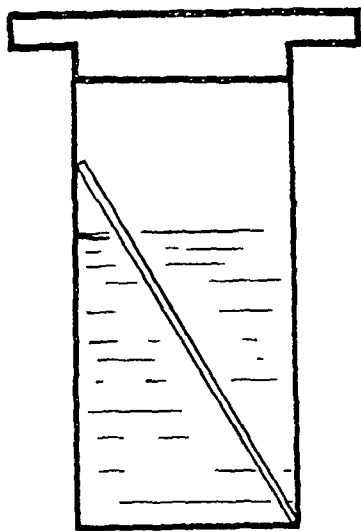
irregular spreading, and distorted corpuscles, how can reliance be placed on a negative parasite search, whoever be the examiner and however perfect the staining technique adopted? The latter, indeed, is the part of the process most easily accomplished. If it be desired, then, to improve the proportion of positive results, attention to the manner of preparation of the film for staining will be amply repaid. During the months in which but little attention was given to the spreading and fixing of my films I found parasites in only 10 to 15 per cent of malarial smears, but after the adoption of a rigid technique the percentage of success rose to over 85 per cent.

Owing to the importance of the subject, it will not perhaps be out of place to review a method of technique for the preparation, fixing, and staining of a blood film.

PREPARATION OF THE FILM

(a) *The Slide*

In the first place perfectly clean good glass slides are absolutely essential. These when produced and unsoiled must not be fingered and exposed to dust. They should be kept in a tightly stoppered bottle containing absolute



alcohol, and when they are withdrawn for use, if not immediately required, they should be placed between two pieces of clean paper to protect them from the dirt and the dust which would otherwise rapidly reach them. Old slides may be cleaned by washing in soap and water, boiling for some hours in strong washing soda, re-washing in clean

water, drying, bathing in strong sulphuric acid for three or four hours, washing gently and slowly but thoroughly in clean water, drying, and storing in absolute alcohol as above.

(b) *The Finger-prick*

The finger should be well cleaned with soap and water to remove any sweat and dirt which might otherwise give rise to crenated corpuscles, and then dried. A small droplet of blood, about the size of an ordinary pin's head, should be produced and transferred to the slide.

(c) *The Spread of the Film*

The technique of the smear is all important. It matters not what form of spreader be used, so

long as the results obtained are good. A specially cut concave edge of a slide makes an excellent spreader (1, Plate I), but if this is not available an ordinary microscopic slide which has been chosen for the cleanliness and smoothness of its edge will give perfectly satisfactory results. The result to aim at is the film spreading at even pressure and uniform rate of a wide and continuous film to roughly cover two-thirds of the length and half the breadth of the glass slide with a smear of such a suitable thickness that a single layer of separated corpuscles is spread out. The termination should not 'tail' but should end in a regular line or curve (2, Plate I). The operation should be commenced as soon as possible after the blood drop has been placed on the slide or clothing and an uneven film may result. To give the slide the necessary support it should invariably rest on some firm basis such as a table. If it be required to increase the thickness of a film, as for instance in anæmic blood or when much serum has been expressed by squeezing the finger, the spreader should be held at an angle nearer the perpendicular and less pressure should be applied than when a thin film is required.

Many of the mistakes in the preparation of blood films can be recognised at a glance. In some the blood has not been allowed to completely spread over its base before the film is made, whilst perhaps the film has been started slowly and finished quickly (3, Plate I). In others too small a blood drop has been taken or too large a drop whilst the spreader may have been applied with unequal pressure. Partial clothing or an uneven slide edge may result in 'tailing' (4). Jerky spreading due perhaps to anxiety to produce a good smear or to insufficient support to the slide will result in a broken film (6). A greasy slide will cause the red corpuscles to form rouleau and a broken ragged film will result (7) whilst a good smear may be subsequently spoiled by flies feeding thereon (8).

When spread, films should be dried by waving the slide, held edgewise, backward and forward in the air. Films should then be covered with a petri dish to protect them from dust and insects, or at once folded in clean paper for transfer to the laboratory, or best of all placed directly in the fixing fluid.

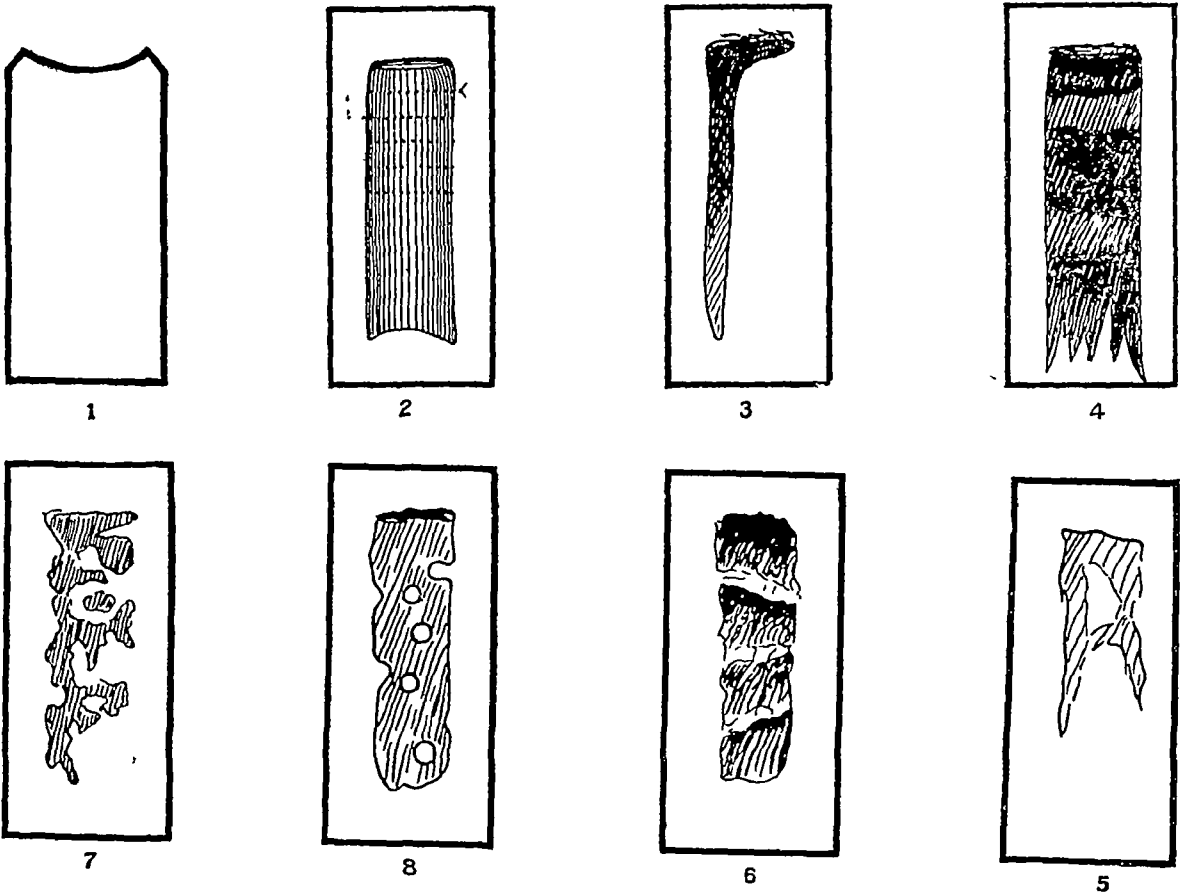
FIXING THE FILM

The next and most important step is to thoroughly fix the film. Either ethyl or methyl alcohol must be used, the latter is quicker but dearer. It may be conveniently purchased in B W & Co's glass capsules. Whichever form of alcohol be chosen, it must be without doubt absolute in quality. The least trace of water is harmful, and for this reason the greatest care must be taken to protect the fluid in stock or

STUDIES IN MALARIA

BY CAPTAIN HUGH STOTT, M B, I M S,
Surgeon to His Excellency the Governor of Madras

PLATE I

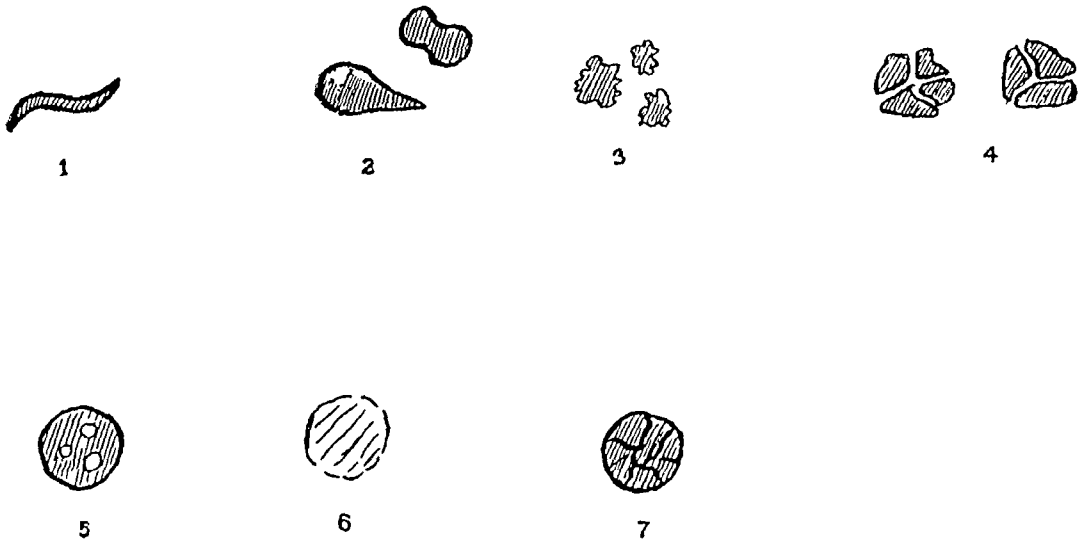


1 Spreader 2—Good smear 3 to 8—Badly spread smears

STUDIES IN MALARIA

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PLATE II TYPES OF ABNORMAL RED CELLS



| | | | |
|---------------|--------------|--------------------------|---------------|
| 1 —Rolled | 2 —Distorted | 3 —Shrunken and crenated | 4 —Compressed |
| 5 —Vacuolated | 6 —Ghostly | 7 —Reticular | |

bulk from contamination even by the atmospheric aqueous vapour. All bottles containing absolute alcohol should be thoroughly well stoppered and if necessary waxed. Fixation is best carried out in a bottle. Half an hour may at times be a convenient period, twenty-four hours is not too long. If there be any reason for urgent hurry ten minutes will suffice. The fixing bottle should be frequently refilled with fresh absolute alcohol. It is advisable to fix as above even if it is intended to use Leishman's stain subsequently. After fixing, the film should be air dried as before, and once again protected from dust and insects if staining is not to be immediately proceeded with. The objection to drying with blotting paper is that foreign matter is liable to be deposited on the smear.

STAINING THE FILM

Romanoski, Leishman and Giemsa are the stains in most frequent use for malarial blood films. The former and the latter have a great advantage over Leishman, namely that their stock solutions may be kept in the plains for some months, whilst Leishman should not be kept in solution in the plains for any longer period than some days.

The methods of preparation and staining detailed below are those recommended by the Central Malarial Bureau and will be found most satisfactory.

A few pieces of readily obtained apparatus are first necessary. Firstly two glass pipettes with rubber nipples which have some device by which they can be readily distinguished from one another, so that for instance the one used for distilled water will not by mistake be used for the stain bottle on any subsequent occasion. A piece of fresh linen for drying and cleaning purposes, a short piece of rubber tubing on which to rest the business ends of the pipettes, a watch glass and a petri dish complete the list of necessities, through an automatic rocker is a useful luxury. Stains may be purchased ready made from some large bacteriological laboratory or prepared in the manner described below. All waters do not give equally good result with the stain. If the water be acid in the least degree it must be neutralized.

ROMANOSKI'S STAIN

It is as well to have two stock bottles of this clean stain always available in case the supply of Leishman or Giemsa fails. If films are to be stained in large numbers Romanoski is the preferable method. It keeps in the plains even longer than Giemsa and for at least six months.

STOCK SOLUTION A

(I) Methylene Blue (medicinal pure)

1 gramme

(Mix) Sodium Carbonate (chemical pure)

0.5 gramme

Distilled water

100 c.c.

(II) Expose to the warmth of the sun for three to five days, by which time a rich red colour should appear, when the mixture is shaken and held up to the light.

(III) Now add 0.5 c.c. formalin as a preservative, but not before the colour developed in (II) has fully appeared, for this is thought to be due to some bactericidal action which would be inhibited by the premature action of the formalin.

STOCK SOLUTION B

One-tenth of a gramme of eosin (Hochst, B. A.) dissolved in 100 c.c. distilled water forming 1 in 100 solution. The bottle must be covered with brown paper, and kept in a dark cupboard or the eosin will fade.

TO STAIN

1 c.c. of each stock solution is separately diluted with 24 c.c. of distilled water immediately before use. These solutions will keep for one day only.

After the slide to be stained has been thoroughly fixed in absolute alcohol, it is dried and placed on a piece of clean paper. Two pipettes are now respectively filled with accurately measured equal quantities of the two diluted stock solutions, and the fluid from them is simultaneously ejected on to the slide and at once thoroughly mixed. Stain for 20 minutes, wash for two or three minutes in distilled water until the red cells are greenish to yellowish, but not bluish-pink. Dry and examine.

It is important to have exactly equal quantities of the two working solutions for the formation of the stain precipitate—which dissolves in excess of either solution. It is important that the two solutions should be simultaneously mixed on the film to obtain the active nascent interaction of the two groups of chemicals. It is more important to keep the staining slide in motion than in the case of Leishman or Giemsa.

A large quantity of slides may be vertically placed back to back in a small bath with perpendicular ledges to separate them and equal quantities of the two working solutions poured in to completely immerse the slides. Large number may in this manner be rapidly stained.

LEISHMAN'S STAIN

It is best to use B. W. & Co.'s fresh Leishman solids and unopened capsules of methyl alcohol in the preparation of this stain. The powder should not be used as it so often contains dirt.

PREPARATION OF STAIN

One solid (0.015 grain) should be ground up to a very fine powder in a small mortar. Ten

drops of fresh absolute methyl alcohol should be added and the grinding continued for one minute. Five c c of the alcohol should now be poured in and ground well up after which the supernatant fluid should be decanted into a small glass-stoppered brown bottle. A second 5 c c of the alcohol should now be poured on the residue in the mortar, the grinding recommenced, and the fluid again decanted. No large particles should now be left in the residue, if indeed any residue there be.

TO STAIN.

For the best results the film should first be fixed in absolute alcohol as above, though this is not considered usually necessary. From one pipette (4" long) place four drops of Leishman on the film and spread entirely over the smear, leave for half a minute if necessary to fix. In very hot dry weather, six drops may be thus placed on the slide, and this if necessary may be placed on a piece of blotting paper soaked in water and the whole enclosed in a petri dish. For every four drops of stain add five of water from a second pipette (2" long). Mix thoroughly and rapidly, first with the edge of the pipette and then by rocking. Replace in the petri dish for fifteen minutes, rocking occasionally. The stain and precipitate should now be flushed off the slide with distilled water not tilted off or much deposit will remain behind. Wash in distilled water for one minute and dry as rapidly as possible, if necessary with clean blotting paper and examine for light transparent pink-red cells and intense bright ruby-red nuclei of white cells. Schufner's dots are specially well shown with this stain. The less Leishman used, the better the result.

GIEMSA'S STAIN

This stain shows up the blue of protoplasm better than Leishman, and owing to the fact that it can be kept in bulk ready for use up to six months in the plains, it is a very useful modification of Romanoski indeed. It is, however, expensive.

PREPARATION OF STAIN

50 c c is a convenient amount to make up according to the following formula —

| | |
|---------------------------------------|---------|
| Azur-II-eosin | 0.3 gm |
| Azur-II | 0.08 gm |
| Glycerine (Merk's, pure anhydrous) | 25 c c |
| Methyl alcohol pure | 25 c c |

It is difficult to obtain anhydrous glycerine so only the above can be used. The glycerine slows down the action and renders the staining uniform. It also saves the solution absorbing any water accidentally introduced.

The Azur must first be well powdered in a mortar to the finest dust. 5 c c methyl alcohol is then added and the grinding proceeded

with 10 c c methyl alcohol is poured in and the grinding continued. Add 12 c c glycerine and grind rapidly. Decant off the supernatant fluid to the stock bottle, add the remainder of the glycerine and alcohol, stir rapidly a few times, and add the solution to the stock bottle, leaving any stain or glycerine behind which fails to join the stock solution quickly. The stain is not ready to use for 48 hours during which time it should be shaken occasionally.

TO STAIN

Fix in absolute alcohol, if possible overnight. Place one drop of stain on the slide and add 15 drops of distilled water, leave for twenty or thirty minutes. Wash rapidly in distilled water and dry in air. Wash any excess of blue out with distilled water. Schufner's dots are not as a rule well shewn.

SOME DEFECTS IN FILMS.

Some of the naked eye faults in blood films which are obvious at a glance have been already referred to. A few remarks may now be passed on those faults which are only to be determined upon microscopic examination.

(I) Defects in the Red Cells

Red cells may be rolled or distorted in shape, due to excessive pressure in spreading. They may be shrunken and crenated because the film was not spread quickly enough after the blood drop was placed on the slide. They may contain bubbles or appear ghostly from insufficient fixation, or because the alcohol was not absolute or because water reached the stain or film previous to staining. They may be marked with a reticular network due to slight hæmolysis from sweaty hands or excessive atmospheric moisture. They may appear uniformly throughout the film too bluish, due to insufficient washing with distilled water or to polychromatic degeneration from severe anæmia.

(II) Defects in White Cells.

White cells may be broken from excessive pressure on the spreader or their nuclei may stain feebly from incomplete fixation or watery stains.

(III) Deposit on Films

Deposit may arise from the drying up of the stain on the slide in the process of staining, from a want of the proper mixing of stain and distilled water, from an old and damaged stock stain, from a dirty slide, from dirty distilled water, from faulty washing, or from improper protection of the film from dust and dirt during any of the above processes.

(IV) Defects in Parasites.

Cromatin may be badly stained probably from imperfect fixation. Parasitic protoplasm, especially

STUDIES IN MALARIA

| Change in red blood corpuscle | Position of parasite | Size of parasite | Staining reaction and appearance of protoplasm | Pigment | Chromation | Shape | Specially characteristic forms | Characters of sporulating forms | Fresh preparation |
|-------------------------------|--|--|--|---|--|-----------------------------------|--|--|---|
| Simple tertian | | | | | | | | | |
| Large forms | Enlarged, pale, irregular, with or without stippling | | Pale blue, transparent, flimsy | Not very conspicuous in stained preparations, yellowish fine | Usually single or two masses closely approximated, some times separated slightly | Irregular | | Spores number 20 or more, sporulating body large, than red cell | Very delicate protoplasm, rapidly dancing pigment |
| Young ring stage | Normal, or may show a few dots of commencing stippling | Smallest rings about 1/5 or more of red cell | | May be a grain or two visible on close inspection | | Ring with rather thick protoplasm | Rings with a single long pseudopodium (batle door form), irregular eye forms | | Pigment variable in large rings |
| Gametes | As in large forms, but mature gametes usually extra cellular | Very large | Rather denser in female forms often a purplish in males, solid, globular parasites | Coarser than in schizonts | Diffuse, abundant large area in male, smallish single mass in female | Globular | | | |
| Quartan | | | | | | | | | |
| Large forms | Not enlarged, may be dark stained | | Protoplasm stains well as a rule | Pigment coarser, readily visible even in stained props | | Lobose or compact | Band like arrangement frequent | Spores may be 8 or less | Protoplasm denser, pigment coarser with little or no movement |
| Young ring stage | Normal | Smallest rings about 1/5 or more of red cell | Stains well, ring outline distinct | Again or two, usually distinct in large rings | Usually single mass | Ring with rather broad protoplasm | Long, narrow ribbon form completely across the cell | | Pigment readily seen dark and punctate |
| Gametes | | Large | Dense | Very coarse, brownish | | Globular | | | |
| Malignant tertian | | | | | | | | | |
| Large forms | | Stages beyond ring forms | Pigment blackish | Rarely seen in peripheral circulation, fine granules or masses of dark greenish black pigment | | | | Spores as a whole few, very small, does not completely occupy red cell | |
| Young ring stage | Considerable portion, as a rule accole, | Smallest rings may be 1/5 diameter of red cell or less | Stains well, very visible, distinct | Not visible | Often split into two unequal widely separated masses | May be very thin ring | Very minute rings, very few rings | | Pigment not visible |
| Gametes | | | | Dark specular | | Crescent | | | |

B T rings) may stain a very faint blue. This may be an inherent defect of the Leishman or due to acid water. One drop of 5 per cent potassium carbonate will intensify the blue staining power of all three stains. Absent 'stippling' in red cells containing benign tertian parasites may be due to weak stains, imperfect fixation, or too lengthy washing, and is especially liable to occur in cells stained with Romanoski and Giemsa.

DIFFERENTIATION OF VARIETY OF PARASITE

The differentiation of the variety of parasite present in any film may be simplified by the help given by the table opposite. It is very easy to overlook a double infection.

ON A MACROSTOMA FOUND IN HUMAN INTESTINAL CONTENTS *

By G. C. CHATTERJEE,

Asst. to Prof. of Pathology, Medical College, Calcutta

AMONG the flagellates found in the human intestine, most commonly observed throughout the world, are the trichomonas and lamblas. Flagellates belonging to the family macrostoma was first found in human dejecta by Wenyon in 1910 in a patient hailing from the Bahamas. Since then, the instances in which this organism has been found are few and far between. It seems, however, that this parasite is fairly common in dejecta of patients suffering from intestinal troubles in Bengal, as within the last six months, during which I have been studying the intestinal flagellates, I have observed them in six instances. As the organism found in these six cases shows characters differing from those found by Wenyon, I thought it worth while to describe it.

The flagellate, when seen under high power in fresh condition, can be easily distinguished by their bigger size from lamblia and the representative of trichomonas found here, which I described under the name of penta-trichomonas in the December number of *Indian Medical Gazette*. On careful examination, a capacious mouth cavity can be seen extending to the middle of the body and in which can be seen engulfed bacteria and red corpuscles found in stool. Unlike lamblia and penta-trichomonas which move rapidly, this organism shows sluggish movement. In fresh specimens no regular undulating membrane can be made out. The presence of anterior flagella can be made out by disturbance of small particles, in front, but they cannot be clearly seen.

STAINED SPECIMENS

When stained by T. H. Stain or Giemsa after fixing in Schaudin's fluid and washing thoroughly in potass iodide solution, the following

characters can be made out. The posterior end of the body is drawn out into a long thin tail. The portion of the body immediately in front of the tail does not take stain and shows no structure. This unstained portion is separated off from the rest of the body anterior to it by a straight line which runs obliquely from one side of the body to the other side. The portion of the body in front of this line takes stain rather deeply, excepting the portion representing the mouth. In the substance of the body are found numerous bacteria and cocci. The oblique line which separates the two portions of the body shows thickening at some portions. It seems to act as an undulating membrane. The capacious cystotome is seen beginning from the front end and terminating nearly to this oblique line. This cavity is bounded by a thick lip which shows folding at some points. This thickening and folding suggests it to be a sort of vibratile organ used for drawing food particles. The cavity of the cystotome is sometimes full of bacteria, but as a rule it is an empty space. No organ like an undulating membrane or flagellum can be made out in any of my specimens, in the cavity of the cystotome, as has been found by Wenyon in his organism. I tried repeatedly for this in living and in stained specimens but I failed to find anything like it. In some specimens the oblique line situated near the posterior end, as found by me in my organism as a distinctive character, is sometimes seen to cross the cavity of the cystotome at its lower edge, but never longitudinally through the length of the cavity of the cystotome.

In the anterior end a little behind the extreme front is situated the vesicular nucleus. It is found a little to one side of the thickened lip of the cystotome almost on the edge of the cavity. In the anterior end are seen, projecting forward, the three anterior flagella originating from basal granules situated very near the nucleus. In most of the specimens, however, the flagella are not clearly seen, probably they are more delicate than flagella of penta-trichomonas and lamblas. In some specimens the lip of the cystotome nearest to the nucleus is seen taking its origin from the basal granules. No divisional forms nor any cysts were found in any of the specimens.

Measurement of the organism—length 14 to 18 μ , breadth 3 to 6 μ , flagella measurement 8 to 10 μ .

LITERATURE

There is a good deal of difficulty in collection of literature on the subject, as different authors describe under the same synonym parasites differing from one another. Wenyon describes his macrostoma as possessing three flagella and an undulating membrane in the centre of the cystotome. Natham Laurier found no undulating membrane. The organism described by Gabel

* Received 3rd February 1915—Ed

under the name of *Difaemus* possesses a cystotome and three flagella but no undulating membrane. Prowazek describes an organism allied to the above but possessing only two flagella. This he describes under the name of *Fanapepea*. Alexieff believes that the *monocercomonas hominis* (Grassi) described by Epstein is identical with *chilomastix*. Prowazek and Werner describe a parasite under the name of *chilomastix*. There are three flagella, no undulating membrane, a capacious cystotome, no axostyle is present. They want to point out that those parasites which have got an axostyle ought to be classified under the name of *cythomastix hominis*. They give the distribution of the organism as follows—

Natham Laurier's case (*Difaemus*) was found in the Ivory Coast, Brumpt found his *chilomastix* in France, Epstein his *monocercomonas* in Prag, Prowazek's *fanapepea* was found in Samoa, Sawai, Japan and India, Gabel found his *Difaemus* in Tunis.

DESCRIPTION OF THE PLATE

The specimen was prepared by fixing in Schaudin's fluid, staining in Giemsa and mounted in Hoyer's fluid. Drawn under 12 eyepiece and 3 mm apochromatic lens, the flagella are not seen in many specimens though other structures are clearly seen.

Nos 1, 2, 3 Show the nucleus and the cystotome clearly.

No 4 The oblique line separating the unstained posterior portion from the anterior portion is clearly seen.

No 5 In this the cystotome reaches down to the tail end.

No 6 The cystotome is full of bacteria.

No 7 The three flagella and cystotome are clearly seen.

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CO-RELATION OF THE DUCTLESS GLANDS AND THE ONSET OF LABOUR.

By FLEMING BARNARDO, M.B.C.P. (Ed.),

MAJOR, I.M.S.

A FEW notes on some experimental observations, on the co-relation of the ductless glands during pregnancy and factors determining the onset of labour.

I would like to draw attention to a sign denoting the intrauterine death of the fetus, which, as far as I understand, has been, up till now overlooked, *viz.* the presence of milk in the

mamma, within 3—5 days of the occurrence (according to the period of pregnancy, the earlier the pregnancy is terminated, the later for the milk to appear). This milk is a true milk secretion and not merely a watery colostrum. The advantages of this knowledge concerning the vitality of the fetus in doubtful cases, will readily be apparent, when alternatives in operative interference are before the surgeon, in complications during the latter months of pregnancy. The presence of this true breast secretion, in such cases, is constant and easy to verify. The explanation is more obscure, and it apparently depends entirely on the interaction of the glandular hormones, in the economy of the pregnant mother. This interaction is complex in the non-pregnant state, and has so far been difficult to elucidate, but much light is shed on the correlation of the ductless glands and their hormones by their behaviour during pregnancy, and I might just briefly refer to some known facts regarding this action, with such light as may be thrown upon them, by some experiments of mine continued during the last eight years.

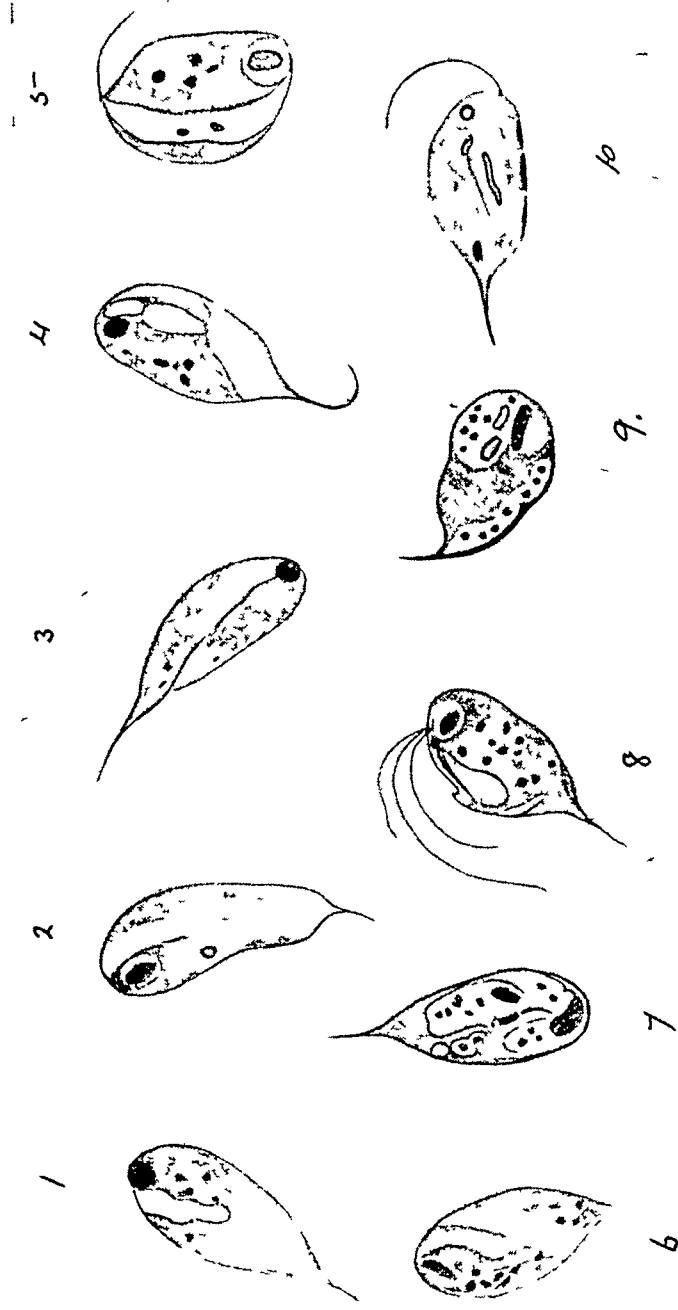
The corpus-luteum of the ovary, as shewn by Blair Bell, Hicks and others, seem to secrete a hormone (lutem) which activates the parathyroids and modifies the excretion of calcium, and causes changes to occur in the mucosa of the uterus, which show themselves clinically as menstruation. The recent researches of Meyer shew that the vascularization, maturation, and retrogression of the corpus-luteum, go hand in hand with the cyclic changes in the uterine mucosa—the maturation occurring with the onset of menstruation. Fellner's experimental work clearly brings out the marked hypertrophy, etc., of the uterine mucosa in non-pregnant uterus, by the injection of extract of ovaries which each contain a corpus-luteum.

As to the uterine mucosa itself, Schroder has recently done much work on the menstrual cycle and changes therein, and he maintains that the secretion of the mucosa reacts in all respects to mucin, and is of opinion that the uterus is not like the ovary, a factory for a special product. This view of the non-pregnant mucosa is in accordance with all my experiments, but it is very different I find with the pregnant decidual mucosa.

The chorionic tissue of the developing fertilized ovum seem certainly to secrete a specific albumin, (placentalin, we may call it) which is activating for the thyroid and the infundibulum, for the thyroid, perhaps, to deal with the anticipated rise in level of endogenous toxins, due to the presence of the developing fetus for the infundibulum especially, to call forth the pressor substance to maintain a constant and rich blood supply for the new life, and also undoubtedly to counteract the fall in blood pressure, etc., which would be resultant on the increase in the activated thyroid.

ON A MACROSTOMA FOUND IN HUMAN INTESTINAL CONTENTS

By G C CHATTERJEE,
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This biochemical factor underlying the relation between these two glands, in their simultaneous enlargement, Cushing has called attention to and points out the signs of functional exhaustion of the infundibulum in women who have had repeated pregnancies in the adiposity, loss of hair, and sub-normal temperature, so common in multi-multipara.

This placentin further seems to have an important action on the uterine mucosa itself, by causing an antigen reaction in it, and activating a substance which checks and limits the invasion of the maternal tissues by the fetal villi. This substance will be absent or deficient in cases of chorio-epithelioma, where the phagocytic power of the fetal epithelium is not checked by the uterine cellular elements, as Haultain long ago pointed out. This uterine hormone (or hysterin) is excited at the outset of the implantation of the ovum by the developing fetal epithelium. Whether it is secreted by the "glande endocrine myométriale," described by Anul and Bouin, or not as yet remains to be verified.

This uterine albumin (or hysterin) is inhibitory to ovarian activity, and prevents its influence on the rest of the uterine mucosa, causing clinically the characteristic amenorrhoea of pregnancy. It is this uterine secretion that the lutein in the corpus-luteum during pregnancy and the lutein cell border formation of Meyer, actively functions during pregnancy. Fischea, however, maintains that the hyperplasia of the infundibulum following oophorectomy, is analogous to that following pregnancy, and believes that the changes in its anterior lobe are due to ovarian insufficiency. The ovarian insufficiency here may be caused by the inhibitory action of the uterine hormone.

It is this uterine albumin, or hysterin, that plays an important part in mammary activity. Though most of the product seem to be activated and held in neutralization by the placental albumin, some escapes into the general circulation and is then available for the activation of the breast tissue, giving rise to the well-known breast enlargement in pregnancy.

On expulsion of the placenta in the third stage of labour the placental albumin is then extra-corporeal, and is not neutralizable, the uterine albumin floods the circulation and activates the breast, which increases rapidly in size and function, giving clinically the well-known rush of milk to the breast on the 2nd or 3rd day.

On the intrauterine death of the fetus a similar occurrence probably takes place. The secretion of placental albumin has ceased, the uterine hormone is not neutralized, it escapes into the circulation and activates the breast follicles to rapid growth and maturation and milk flow is the result.

The association of mammary activity with pregnancy and parturition has been the theme of many explanatory papers indeed, but, so far in the existing theories, there is little of continuity. I may just draw attention to a few points which my experimental work has brought out.

The hyperplasia of the lobular acini of the breast in pregnancy cannot be in response to a nervous stimulus as neither pilocarpine nor atropin have any effect whatever on it, as judged by the milk secretion. Mechanical stimuli are important, but the response of the breast to these, as massage, suckling, etc., brings not a true secretion, but only an increased flow consequent on the reflex contraction of muscular fibres round the lacteal ducts. In this connection, the habits of young animals are interesting in their endeavour to stimulate maternal secretion mechanically, as the pawing and kneading of the breasts, by puppies and kittens and humans, and the punching of the udder by calves, etc., etc.

Niklas has recently suggested the view that the stimulus is probably a hormone. He is uncertain as to its factory of origin. It may be, he says, in the ovary, thyroid, thymus, hypophysis, placenta (Fetal) or the breast tissue itself. He inclines to the view that the placental tissue is the seat of the galactagogue hormone. I cannot experimentally corroborate this. But I find there is the most marked distinction, between the action of glandular extracts, on the resting breast and the lactating one.

As regards the resting and non-lactating breast, I have found no response whatever, either measured by volume or secretion, by the use intravenously of pituitary, thyroid, ovarian or thymus extracts (of the same species). The same exactly resulted by use of mammary extract (of either resting or lactating glands). Pregnant uterine extract caused some activity, within 24 hours, in the breast, *i.e.* an increase of volume, and some slight flow of milk on the 2nd day. Non-pregnant uterine extract caused no activity whatever. Placental extract sometimes caused activity and sometimes did not, probably, as we shall see, due to its chance content of any uterine extracts.

But as to the lactating gland itself, results were somewhat varied, but the summary may be briefly stated. Extracts of thyroid, thymus, mamma (lactating or resting) had no activating influence whatever. Pituitary extracts gave a fairly constant degree of increase, but the breast decreased in volume, while the specific gravity of the contents was lowered. In no case did pituitary extract increase the milk flow in cases where lactation had failed (in cases of sepsis, shock, etc.) or was failing. Placental extract unwashed, gave a greater activating extract than placental extract washed, but nothing like so much as pituitrin. This seemed to indicate as

in the Abderhalden pregnancy reaction, the presence in unwashed placental tissue, of some substance which was not in the tissue when washed. For by that reaction, one can clearly show the existence of a specific albumin in the maternal blood, which will react to placental albumin. Abderhalden's technique is extremely exact and he lays great stress on the washing of the placental tissue before making the extract. This is virtually removing most of the maternal cellular elements and their products. Most of the variations, it would thus appear in the verification reports of observers, would appear to have resulted from the non-adherence to the careful technique prescribed, and in especially the careful washing of the placental tissue. For the more maternal albumin there is present in the placental extract, the less will the reaction of the maternal blood to it, hence the necessity of its removal to get accurate and consistent results.

This would appear to suggest the uterine cellular elements as being the factory of the galactagogue hormone. And I found in lactating bitches, the greatest activator of mammary activity, to be the extract of pregnant or puerperal uterus of the same species (a resting uterus gave no response). If intravenously injected into a lactating bitch, the appearance of an increase in flow of milk could be noted in 8—10 minutes, and the measure of the increase was 15—20 fold. If the puerperal uterine extract be intravenously injected into a pregnant bitch, the milk secretion would be apparent in 30—32 hours, gradually decreasing after 72 hours if the injection be not repeated.

But has the activated breast itself then no specific secretion of its own? Seitz would have it that there is no internal secretion proved for the mammary gland. Others, such as Walcher, maintain that the factory for the toxins causing eclampsia is found in the mammary gland, and he advises emptying the breasts or amputation as a means of treatment. This position is denied by Wilson, who classifies the mammary theory of eclampsia as a specious one.

Whatever be the action of the mammary secretion on metabolism generally, when excessive or perverted in the direction of eclampsia, it can be easily demonstrated to have a very definite action on the pregnant uterus itself.

It would seem that the uterine contractions and retractions, which are continuous throughout pregnancy (clinically known as Braxton Hicks' sign) are the result of the mammary hormone being accumulated, under activation from the uterus, and being at intervals discharged into the circulation, each discharge is followed by a uterine contraction and as labour is only the end result of the gradual lengthening and strengthening of these contractions and retractions, this mammary hormone, by ever-increasing discharges into the

blood, would seem to be the primary factor in the onset of labour. Further, when the uterine contractions are so great as to cause oozing of greater and greater quantities of uterine mamma-activating substance into the circulation the hypophysis is greatly stimulated and uterine contraction is much auxiliated by its pressor action. The hypophyseal extract causes the contraction of the muscular fibres in the mamma and in the absence of milk secretion forces an ever increasing amount of mammary hormone into the circulation. This, again, reacts on the uterus to a further increase of contractions, and thus we have the uterus and mamma commencing the process of labour, and when this uterine contraction becomes strong enough to force a sufficient percentage of uterine hormone into the circulation to activate the hypophysis, the latter, too, helps in the process, and the action of the hypophysis thus is seen to be at its greatest, when the reciprocal activation of uterus and mamma is at its highest point, *i.e.*, towards the end of labour.

Thus, Lofqvist has shewn that pituitrin will not stimulate contractions in a uterus, which is not in labour already, at first its action is only weak and becomes maximal only at the end of labour. No amount of medicinal substance as herberine ergot, causing simple uterine muscular contraction can ever cause the onset of labour. The emptying of the uterine cavity and the lengthening of the periods of contraction depends on the periods of relaxation, *i.e.*, on the alternation of contraction and retraction. If this were the result of hypophyseal extract alone, continued uterine contraction would be the result, owing to its pressor action on muscular tissue and death of the fetus would naturally result. The difference between the action of ergot and the mammary hormone is, that ergot causes a tetanic or continuous contraction of the muscular fibres with no relaxation, and hence is useful in post-partum hæmorrhage, as such hæmorrhage occurs chiefly in the periods of relaxation. But the mammary hormone at first alone, and later the mammary, aided by the pituitary hormone in labour, causes the lengthening of the contractions and the shortening of the periods of relaxation, and hence pituitrin is more useful in inertia uteri, rather than in post-partum hæmorrhage, as, owing to the existence of periods of relaxation (short as they may be), its use is not so effective, as a hæmostatic, as ergot. But as Ballantyne has recently pointed out, the use of pituitrin at present is mainly empirical, and its therapeutics have outrun our knowledge of its pharmacological action.

Schäfer has, however, in his recent exposition of the function of the pituitary body, found a hormone in the posterior lobe, activating secretion (apart from mere muscular stimulation) in

the lactating mammary gland, and Hering, too, has obtained a pituitary hormone from the skate, stimulating the mamma, without either influencing the circulation on the kidney

Heaney, however, does not acquiesce in these views, and has shewn that no amount of pituitin will increase the manufacture of actual milk secretion, and he still maintains that the galactagogue action is entirely a muscular one

With this view of Heaney's my experiments are inclined to agree. I can find no actual increase of milk secretion, only an increase of milk flow, and, judging from the failure of pituitin to stimulate the rapidly failing lactation in cases of shock, sepsis, etc., I believe that its galactagogue action depends on (1) its stimulation of the uterus to contraction, thus forcing out an increased amount of uterine hormone into the circulation of which hormone is the activating agent for the mamma, (2) its stimulation of non-striated muscle fibres in the mamma itself. The pituitary extract is thus a secondary and not a primary galactagogue, and while the enlargement of the pituitary body and mamma is due primarily to the uterus, still the former, by causing the contraction of the non-striated muscle fibre of both the latter, controls the biochemical relation between the two. Moreover, this galactagogue hormone too, by the researches of Ott, Schott and Mackenzie is corroborated as being found in the posterior lobe of the hypophysis, in common with the pressor substance, and not in the anterior lobe, where one would expect it, if it were a primary secretion (or another specific property of the hypophysis itself)

In the puerperium, the continuance of the activity of the breasts, leads to continuance of uterine contraction and retraction and hence more rapid involution, and so two popular ideas seem actually to have a physiological basis, *viz.* (1) the possibility of checking post-partum hæmorrhage by massage of the breasts, (2) the more rapid involution of the uterus, if the child is suckled

Further, as long as lactation is going on, it is rare for ovulation and menstruation to commence, probably, for, as long as the uterine hormone is present in the puerperal uterus, it is not only activating the breasts, but also inhibiting the ovaries

The metabolism of the body under the direction of the ductless glandular system is thus made more obvious by the many suggestions afforded by its behaviour in pregnancy, and as Blair Bell has pointed out, most of the confusion and contradiction in the work, so far done, has been due to the neglect of the principle, that the essential processes of life *viz.* the individual metabolism and the reproductive metabolism, are not only interdependent but are actually one and the same, and we can thus thoroughly agree with his aphorism — "*Propter secretiones internas totas, mulier est quod est*"

A Mirror of Hospital Practice.

A CASE OF EXCISION OF THE UPPER JAW FOR SARCOMA PERFORMED AT THE SREE SREE SREE BIR HOSPITAL, NEPAL (KHATMUNDU)

By SURESH CH DAS GUPTA, L.M.S. (Cal),

Late Medical Officer, Bir Hospital, and Lecturer of Anatomy, Nepal Medical School

NIHMA-TONJIN —The patient, a male aged 55, by race a Tibetan, was admitted to hospital on February 9th, for the treatment of sarcoma of the upper jaw, both sides being involved

Previous History —The patient could give no definite history as to the nature or onset of growth, except that it appeared about two years ago near the alveolar part inclining more to the right. The tumour grew very rapidly and invaded the surrounding parts, and in the course pushed forward the wall of antrum and alveolus on the one hand, and protruded below through the forepart of the palate on the other, so much so that the patient could not even close his mouth or swallow any food but liquids. These constituted the main complaints of the patient

Condition on admission —Patient was anæmic to some extent, perhaps for want of proper nourishment, but possessed a fairly normal pulse. The face appeared to be quite *elongated* forward resembling more a beastly than a human form. Both nares as well as the entrance of mouth were nearly blocked up by the growth (as will be seen in the photo). Besides, the patient had goitre also

TREATMENT

Preparation —Patient was duly prepared for the operation on the 12th February, head and face being shaved previously and the usual bath given, followed by a dose of castor oil and enema on the morning of the operation day. The mouth and the nares were being daily syringed with lotio pot permang since the date of admission in order to make them as aseptic as possible

Position —Patient was placed in the dorsal position on the table, with the neck supported on a low and rounded pillow wrapped up in a sterilized towel, and head hanging down from the edge of the table is turned to the sound side. This position I preferred in order to prevent the blood from flowing into the mouth and trachia

Division of Work —All my assistants in this operation were military hospital assistants and medical students from the Nepal medical school. I took as many as seven

Preliminary Steps —The patient had an enlargement of the thyroid too, which happily

prevented me from performing laryngotomy or trachiotomy, besides I was not much in favour of it, on account of its further complicating the case during and after operation, nor could I plug the posterior nares—so much advocated by Sir F. Treves. I had no other alternative than follow Professor Rose by throwing the head back, which procedure, indeed, helped a great deal for the escape of blood through the wound and nose, but at the same time I must frankly admit the spectacle was simply ghastly, the face being congested, nay, coloured jet black and frothy blood gushing out from the nose, mouth and the wound.

Anæsthesia—Chloroform was administered by means of a catheter guarded by rubber tubing through the nose, later on when the floor of the nasal cavity was sawn down, a piece of sterilized gauze soaked in chloroform was held in front of the face.

Operation—I followed mainly Sir F. Treves, and in certain points Mr. H. J. Waring also with some deviation here and there to suit the requirements of my present case. I divided the lip in the centre in order to have a thorough view inside the mouth, which was blocked by the growth to ascertain the exact amount of damage, and secured each side with polypus forceps and proceeded in the usual manner. As I intended to preserve the orbital plate which was not in the least affected, I made my incision on the inferior margin of the lower lid—a little lower down, to expose the malar prominence. Then having dissected the cheek flap and duly reflected, and all bleeding points well secured, I proceeded to sever the bony connection. After separating the nasal cartilage I divided the nasal process somewhat lower down with a saw and separated the orbital plate from the main bone by means of a chisel—a little below the level of the infra-orbital foramen and ending in the sphenomaxillary fissure.

Patient had lost previously all the incisor and canine teeth in the course of the destructive growth of the tumour, so that I had only to divide the mucous membrane and periosteum of the floor of the nasal cavity, and on the under surface of the hard palate and separate the soft palate from the former by a transverse incision. Then I introduced the index and middle finger of my left hand into the mouth in order to guard its floor and passed a key-hole saw into the right nares and cut down the palate and alveola as quickly as possible. From the beginning to the end, the cavity of the mouth and back of fauces were being constantly cleared up by gauze swabs, mounted on sponge holders mainly by my assistants and at times by me too.

Last of all I broke away the last connection of the maxilla with the pterigoid process by means of an angular bone forcep (Liston or

Hoisley) and dislodged the bone with a lion forcep by a slight rotatory movement directed downwards and forwards and simultaneously plugged the cavity with dry sterilized gauze as firmly as I could, and then proceeded to the next side. I removed the horizontal plate of the sup-maxilla and the alveolar process up to the second molar tooth by means of a bone forcep aided by chisel. Next removing the former gauze plug, I quickly cauterized all bleeding points at bony parts and ligatured at fleshy ones, and then applied a moist iodoform gauze plug as before.

The skin wound was finally sutured with silk worm gut—first of all the tip having been adjusted with a pin and then the wound at the internal canthus of the eye and ala of nose being secured. Next the wound was dusted with iodoform and dressed and bandaged.

After Treatment—Patient was raised in bed and head fixed by means of pillows and sand bags. The cavity of the mouth was syringed with listerine diluted in tepid water every four hours.

Gauze plug was removed at the end of 24 hours and cavity dusted with iodoform by an insufflator and packed up with iodoform gauze again. No food was given by mouth for first three days—nourishment supplemented by nutrient enemata. Brandy was administered at times.

Temperature of the patient kept normal all through and there was no hæmorrhage at all. Although the patient complained of slight pain in the early days, he bore the after-effects quite wonderfully.

From the 4th day of the operation, I began to feed him by œsophageal tube—sufficient quantity of milk, soup and egg mixture.

Stitches were removed on the 6th day afternoon and the line of incision was covered with collodion dressing. A photo of this case *after operation* was taken on the same day as soon as the stitches were removed—when the swelling of the surrounding parts had not subsided completely. The eyes of the patient in the photo are closed and that is due simply to the negligence of the photographer.

The wound healed up inside too rapidly and the patient was discharged as cured on the 4th March—i.e., on the 21st day of operation.

Patient's voice was but very slightly affected that is also on account of the absence of the roof of the mouth, but he could take his ordinary meal* quite comfortably at the time of discharge, and on my asking to remove the enlarged thyroid, the patient laughed and said that he did not care for it when his main source of trouble is got rid of.

* The ordinary meal of the Tibetan consists of tea, maize in powdered form made into a gruel, and soup.

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Indian Medical Gazette.

APRIL.

NOTICE.

The Editor will be glad to receive contributions from Officers serving with the Expeditionary Forces.

THE INDIAN HOSPITALS AT BRIGHTON

IN November 1914 Government decided to open hospitals in Brighton, for the reception and treatment of the wounded of the Indian expeditionary force, serving in France and Flanders. Brighton was selected as a suitable spot for the purpose, as being on the South Coast, with an equable climate, and within comparatively easy distance of Southampton, the port to which the hospital ships bring the wounded from Boulogne, the journey by rail in ambulance trains taking only about two hours, and also as possessing buildings which could be converted for use as hospitals. It was determined to open five general hospitals, as base hospitals, in the town, each containing about 550 beds. Of these five hospitals, one was to be in the Pavilion, about a quarter of a mile from the sea front, a second in the York Place Municipal secondary schools about a quarter of a mile further inland, and the other three were to be accommodated in the workhouse, a very large building on high ground on the Downs, at the North-East corner of the town, adjoining the racecourse, and about a mile and a half from the Pavilion.

Colonel R N Campbell, C B, C I E, I M S (ret'd) was appointed to the command of these hospitals with* Lt-Colonel W H W Elliot, D S O, as his secretary and registrar, and Captain Fortescue, R A M C, as adjutant. Lt-Colonel J N Macleod, C I E, was appointed to the charge of the Pavilion Hospital, and Lt-Colonel T H Sweeny to that of the hospital in York Place. Each hospital was divided into seven sections and with an X-ray officer and a registrar, each had a staff of ten

senior officers. As junior staff, each hospital had five junior officers of the R A M C, seven Indian qualified men, who had either taken or were working for British qualifications, six or eight Indian medical students as dressers, with about as many non-medical students as interpreters. The ward orderlies were furnished partly by the R A M C, and partly by the St John's Ambulance Corps, under a quartermaster R A M C, for each hospital. The staff for these two hospitals was assembled by 1st December. A busy fortnight was occupied in getting the buildings into order for use as hospitals, provision of beds and other furniture, medical stores, etc. On 14th December the first patients arrived, filling about half of each hospital and by the end of the year both were full.

It was understood at first that the three hospitals in the workhouse, which collectively received the name of the "Kitchener Hospital," were also to be staffed by retired officers of the I M S, and three retired officers were nominated to the charge of the three hospitals, Lt-Colonels R E S Davis, J J Piatt and E H Shaiman. The task of converting the workhouse buildings into hospitals was entrusted to Lt-Colonel Davis, Lt-Colonel Piatt temporarily took charge of a section of York Place Hospital, while Lt-Colonel Shaiman remained in charge of the Indian wounded at Netley, where the Royal Victoria Hospital, so well known to generations of I M S men, was temporarily utilised for the reception of Indian sick and wounded. The conversion of the workhouse was a big job, and took a long time. Incidentally, it also involved a very large expenditure.

Long before the Kitchener Hospital was ready for occupation Government had changed the decision as to the staff to be employed therein, and determined to work it with a staff sent from India for the purpose. On 12th January four Indian hospitals arrived at Brighton. They were—L hospital from Poona, under Brevet-Colonel B Seton, who was also in charge of the whole, Y hospital, also from Poona, under Lt-Colonel J M Crawford, No 1 hospital from Peshawar under Lt-Colonel Austen Smith, and No 8a from Quetta, under Lt-Colonel Browning-Smith. With them also came some details to reinforce No 7 hospital, which is serving in France. After a few days Lt-Colonel Browning-Smith and his

* All I M S officers, unless otherwise described

hospital were transferred to Bournemouth, the others remained in the Kitchener Hospital at Brighton. These hospitals were officered partly by fairly senior officers of the I M S, partly by young officers, European and Indian, newly commissioned as temporary Lieutenants.

The original staff with which the hospitals opened was as follows —

Pavilion — Lt-Colonel J N Macleod, CIE, in charge, Lt-Colonel W S P Ricketts, registrar, Lieutenant C J Morton, X-rays, Lt-Colonels Bull, H R Woolbert, and J G Hulbert, Majors T Langston, C L Williams, M Dick, and Waters.

York Place — Lt-Colonel T H Sweeny, in charge, Lt-Colonel W Coates, registrar, Lt-Colonel T D C Barrie, X-rays, Lt-Colonels J B Gibbons, D G Crawford, J J Pratt, H Herbert, I B Jameson, C Duer, and Major E S Peck.

Four of these officers were lent from the Brockenhurst Hospital, which had been temporarily closed, Lt-Colonels Bull, Gibbons, Jameson, and Herbert. They were recalled to Brockenhurst on 10th December, their places being filled by Lt-Colonels O H Channer at the Pavilion, and J Duke, E W Young, and H Greany, at York Place.

Of these officers, Lt-Colonel J N Macleod is on the active list of the I M S, Major Waters, Captain Fortescue, and Lieutenant Morton are officers of the R A M C, the last being a temporary officer, the others are all "dugouts," or retired officers, of whom Lt-Colonels Hulbert and Duer, Majors Langston, Peck and Dick, were liable to recall, the others older men who have volunteered for service during the war.

The R A M C officers, with the exception of Captain Fortescue, Lieutenant Morton, and one other, Captain Way, were withdrawn at the beginning of February, being transferred to Aldershot. Major Langston was also transferred from the Pavilion to Y Hospital in the workhouse. Lt-Colonel Pratt was transferred to London. Several other retired officers joined the staff in February, Lt-Colonels J H Tull Walsh and A W Alcock, CIE, at the Pavilion, J W Evans, D Bain, and R J Baker at York Place. The R A M C non-commissioned officers and men were also transferred, and the St John's orderlies enlisted in the R A M C for the war.

In January also a number of Red Cross Nursing Sisters were appointed to the Pavilion and York

Place, about ten to each. They are not expected to do the actual nursing, or to do night duty, but supervise the orderlies and the general working of the wards. The Kitchener Hospital, being run entirely on Indian lines, has no nurses.

Of the three officers who had formerly been appointed to the charge of the three hospitals in the workhouse, Lt-Colonel Davis reverted to charge of a section in the Pavilion, Lt-Colonel Pratt was appointed to the War Office Medical Board for adjudication on officers' wound pensions, and Lt-Colonel Sharman has remained at Netley.

On 1st February a large batch of sick and wounded was received at Brighton from Netley, some one hundred serious cases being sent to the Pavilion and York Place, and over three hundred convalescents to the Kitchener Hospital, these being the first patients received there. This transfer appears to be the first move in the clearing out of the Indian patients from Netley, to make room for British wounded. Some three hundred Indians, however, still remained at Netley after this move had been made.

Patients are discharged from the Brighton Hospitals in three directions, a few to a dépôt at Milford in Hampshire, prior to rejoining their regiments, a large number to a convalescent home at New Milton, near Milford, where they are put through a certain amount of drill, etc, before rejoining, and a considerable number to India. The future disposal of the last class is left to be settled in India. Some will rejoin the dépôts of their regiments, with or without previous sick leave. Many, of course, will have to be permanently invalided.

The duties in these hospitals give work enough to be interesting, but as a rule can hardly be considered very onerous. Each officer, except those in command, takes it in turn to serve as orderly officer, spending 24 hours in the hospital, and sleeping there. One may safely say that none of them ever expected to be doing orderly officer again, at their age and length of service, in one case 67 and 42 years respectively. The Indian qualified men also take orderly duty in turn, one senior and one junior officer being thus always on duty. Some of these Indians have already received, and the others will shortly receive, temporary commissions, as Lieutenants in the I M S, to put them on a footing of equality with the temporary officers appointed in India.

Besides the Brighton Hospitals for Indian sick and wounded, there are similar hospitals at Netley and Bournemouth, and two at Brockenhurst

Current Topics

THE STATE MEDICAL FACULTY, BENGAL

In our October No 1914, p 404, we gave in full the Statutes and Schedule for the establishment of a State Medical Faculty in Bengal and since then much work has been done to start the Faculty and the result is the following new schedule (published in the *Calcutta Gazette* of March 31st 1915)

As this differs in some important and in many minor matters from the former one published in August last, we quote it in full for it is a very important document concerning medical education in India. It will be seen that the curriculums prescribed both for the License and for the Membership are thorough and complete —

SCHEDULE

INTERPRETATION CLAUSES

1 "Recognised" means recognised for the purpose by the Bengal Council of Medical Registration

2 "A Recognised University" means a University established and incorporated under the Indian Universities Acts or a University of the United Kingdom or the Colonies

3 Regular attendance shall be considered to be attendance at 75 per cent of the lectures and Practical Classes in that subject in a recognised college or school

I—EXAMINATION FOR MEMBERSHIP OF THE STATE MEDICAL FACULTY

The examination shall consist of three parts—

- (i) The Primary or Preliminary Scientific Examination
- (ii) The Intermediate Examination
- (iii) The Final Examination

Each of these examinations shall be held twice a year at such times as the governing body shall determine

THE PRIMARY OR PRELIMINARY SCIENTIFIC EXAMINATION

1 Every candidate for the Primary or Preliminary Scientific Examination shall apply to the Secretary in the form prescribed by the governing body with a fee of Rs 20 at such time before the examination as may be fixed by the governing body. He shall also furnish certificates—

(a) that he has passed the matriculation examination or any higher examination in Arts or Science of a recognised university. The school final examination for Indian schools and the high school or scholarship examination for European schools or any examination which is accepted by the local Government as equivalent thereto will be accepted as equal to the Matriculation Examination,

(b) that he has been engaged in medical studies for one academical year in a recognised medical college or

school after passing the Matriculation Examination or its equivalent,

(c) that subsequent to passing the Matriculation Examination (or its equivalent) he has attended regularly the following courses of lectures and practical classes in a recognised medical college or school —

(i) One course of 60 lectures in Chemistry and 30 attendances at practical classes

(ii) one course of 40 lectures in Physics and 20 attendances at practical classes,

(iii) one course of 40 lectures in Biology and 40 attendances at practical classes,

(a) that he is of good character. This certificate must be signed by the head of the medical college or school in which the candidate has received his training,

(e) that he is not under the age of 17 on the first day of the month in which the examination is held. The certificate shall state the exact age of the candidate

2 Every candidate shall be examined in the following subjects —

(a) Chemistry, Inorganic and Organic, having special reference to Practical Medical Science

(b) Elementary Physics

(c) Elementary Biology

3 The examination shall be written, oral and practical

4 A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. A candidate who fails to pass may be admitted to one or more subsequent examinations on payment of a like fee of Rs 20 on each occasion and on producing a certificate from the head of his college or school that he has since the last examination received further instruction to the satisfaction of the head of his institution in the subject or subjects in which he has failed, provided that any candidate who has failed four times will not be admitted to further examination, except on the special recommendation of the head of the college or school

Exemptions.

1 Any candidate who has passed the Preliminary Scientific M B Examination of any recognised University shall, except in Chemistry, be excused attendance at lectures and the practical work and also the Theoretical, Oral and Practical Examination for the Preliminary Scientific Examination of the State Medical Faculty

2 Any candidate who has passed the Intermediate Examination in Arts or Science of any recognised University, in one or more of the following subjects, namely, Physics, Botany and Zoology,* shall be excused attendance at lectures and the Practical work and shall not be examined in the theoretical portion of the examination in the corresponding subjects. No candidate under this exemption shall be excused the oral and practical portion of the examination in any subject, unless he can produce a certificate of having passed a practical examination in that subject

3 Bachelors of Arts or Science of any recognised University who have passed in Physics, Chemistry, Botany and Zoology* will be excused attendance at lectures and the practical work and also the Theoretical, Oral and Practical Examination in the subjects in which they have already passed

* No exemption in General Biology at the Preliminary Scientific Examination will be granted to Students who have not passed the Intermediate Examination in Arts or Science or the B.A. or B.Sc. Examination with Botany and Zoology.

THE INTERMEDIATE EXAMINATION

1 Every candidate for the Intermediate Examination shall apply to the secretary in the form prescribed by the governing body with a fee of Rs 25 at such time before the examination as may be fixed by the governing body. He shall also furnish certificates—

(a) that he has passed the Primary or Preliminary Scientific Examination at least two years previously,

(b) that he has attended regularly the following courses of instruction at a recognised medical college or school—

(i) Two courses of 50 lectures each in General and Descriptive Anatomy and a course of Dissections during two winter terms, in the course of which he has completed the dissection of the entire human body

(ii) Two courses of 40 lectures each in Materia Medica and Pharmacology and a course of instruction in Practical Pharmacy extending over two months, including a practical knowledge of the preparation and compounding of medicines

(iii) Two courses of 40 lectures each in Physiology and Practical Courses in (1) Normal Histology, (2) Experimental Physiology and (3) Physiological Chemistry, each extending over a period of three months

Provided that (1) a Licentiate of the State Medical Faculty, (2) a registered practitioner who is entered in the Medical register by virtue of his having been trained in a Government Medical College or School and his holding a diploma or certificate granted by Government, (3) a female student who has obtained a certificate entitling her to practise in Medicine, Surgery or Midwifery from a Government School or College may be admitted to a combined Primary and Intermediate Examination on producing certificates—

(a) that ^{he}_{she} has passed the Matriculation Examination of a recognised university or its equivalent

(b) that ^{he}_{she} has subsequently been engaged for one year in medical studies in a recognised medical college or school and regularly attended an additional course of lectures and Practical Classes in each of the following subjects—

| | | |
|--|---|------------|
| Biology | { | Anatomy |
| Chemistry and Physics | | Physiology |
| Materia Medica, including Practical Pharmacy | | |

2 Every candidate shall be examined in the following subjects—

(a) Anatomy

(b) Physiology

(c) Materia Medica and Pharmacology

3 The examination shall be written oral and practical

4 A candidate who fails in not more than one subject shall, on payment of Rs 15, be permitted to appear at the next six-monthly examination only in that subject, and on passing, shall be held to have passed the entire examination. A candidate failing to pass or appear under this provision shall be required to appear in all the subjects of the examination

5 A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. Any candidate who fails to pass may be admitted to one or more subsequent examinations on

payment of a like fee of Rs 25 on each occasion and on producing a certificate from the head of his college or school that he has since the last examination received further instruction to the satisfaction of the Head of the institution in the subject or subjects in which he has failed, provided that any candidate who has failed four times will not be admitted to further examination, except on the special recommendation of the Head of the College or School

FINAL EXAMINATION

1 Every candidate for the Final Examination shall apply to the Secretary in the form prescribed by the governing body with a fee of Rs 40* at such time before the examination as may be fixed by the governing body. He shall also furnish certificates—

(a) that he has passed the Intermediate Examination of the State Medical Faculty or the First M B of a recognised university at least two years previously,

(b) that subsequent to passing the examination referred to in (a) he has regularly attended the following courses of study at a recognised College or School—

(i) Two courses of 50 lectures each in (1) Medicine, (2) Surgery, (3) Midwifery, Gynecology and Diseases of Children,

(ii) One course of 40 lectures in General Pathology,

(iii) One course of 40 lectures in Medical Jurisprudence,

(iv) One course of 15 lectures in Diseases of the Eye,

(v) One course of 20 lectures in Hygiene,

(c) that subsequent to passing the Intermediate or First M B he has regularly attended a course of Operative Surgery of not less than 30 demonstrations during a session,

(d) that he has attended a course of practical instruction and demonstration in Pathology and Bacteriology extending over not less than four months, and that in the presence of his professor or teacher he has performed not less than six *post-mortem* examinations and in addition has attended at least six practical demonstrations in the dead-house of a recognised hospital during a period of not less than three months,

(e) that he has attended at least six labours. Certificates on this subject may, at the discretion of the governing body, be accepted from any registered medical practitioner,

(f) that he has regularly attended hospital and dispensary practice during the last two years, *viz*—

(i) Three months' attendance at the surgical outdoor and three months' attendance at the medical outdoor departments of a recognised hospital, and a certificate that he has received practical instruction in vaccination

(ii) Six months' attendance in the medical wards of a recognised hospital, with clinical teaching during such attendance

(iii) Six months' attendance at the surgical wards of a recognised hospital, with clinical teaching during such attendance

(iv) Three months' attendance at the ophthalmic department of a recognised hospital

(v) Three months' attendance in the gynecological ward or wards or at the out-patient department of a recognised hospital

(vi) That he has received practical instruction in the administration of anesthetics at a recognised hospital

(vii) That he has drawn up with his own hand twelve medical and twelve surgical cases during his period of service as clinical clerk or dresser

* The instruction in Practical Pharmacy may be received at any time before the Student enters for examination in this subject, and certificates under this sub section will be accepted from the Heads of Hospitals or Dispensaries recognised by the Surgeon General with the Government of Bengal for the training of compounders or from members of the Pharmaceutical Society of Great Britain in actual practice of their profession

* If the examination be taken in two parts, as mentioned in paragraph 2, the fee shall be Rs 25 for each part

2 The final examination may be divided into two parts, as defined below. Each part may be taken separately —

| | |
|-------------|---|
| First part | <ul style="list-style-type: none"> { Medicine { Surgery { Midwifery |
| Second part | <ul style="list-style-type: none"> { Pathology { Medical Jurisprudence { Hygiene |

3 The candidate shall be examined in the following subjects —

| | |
|-------------|--|
| First part | <ul style="list-style-type: none"> { Medicine and Therapeutics { Surgery and Ophthalmology { Midwifery, Gynecology and Diseases of Children |
| Second part | <ul style="list-style-type: none"> { General Pathology { Medical Jurisprudence { Hygiene |

4 The examination shall, except as hereinafter stated, be written, oral and practical

- (1) The examination in medicine shall consist of—
 - (a) a paper,
 - (b) an oral examination,
 - (c) a clinical examination
- (2) The examination in surgery shall consist of—
 - (a) a paper,
 - (b) an oral examination,
 - (c) a clinical examination,
 - (d) an examination in operative surgery
- (3) The examination in midwifery, etc., shall consist of—
 - (a) a paper,
 - (b) an oral and practical examination
- (4) The examination in pathology shall consist of—
 - (a) a paper,
 - (b) an oral examination,
 - (c) a practical examination
- (5) The examination in medical jurisprudence shall consist of—
 - (a) a paper,
 - (b) an oral examination
- (6) The examination in hygiene shall consist of—
 - (a) a paper,
 - (b) an oral examination

5 A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. Any candidate who fails to pass may be admitted to one or more subsequent examinations on payment of the prescribed fee on each occasion and on producing certificate from the head of his college or school that he has since the last examination received further instruction to the satisfaction of the head of the institution in the subject or subjects in which he has failed, provided that (a) any candidate who has failed four times in either part will not be admitted to further examination, and (b) any candidate who has passed in two subjects in one or both parts shall be exempted from passing in those subjects in any future examination.

6 A Licentiate of the State Medical Faculty, or a female student who has obtained a certificate to practise medicine, surgery and midwifery, may be admitted to the Final Examination (in both parts together) on producing certificates—

- (a) that he or she has passed the Preliminary Scientific and Intermediate Examinations of the Membership of the State Medical Faculty,
- (b) that since passing the Intermediate Examination he or she has been engaged for one year in the study of medicine in a recognised medical college or school and has regularly attended hospital practice for one year as

well as an additional course of lectures and practical classes in the following subjects —

| | |
|-----------|-----------------------|
| Medicine | Pathology |
| Surgery | Medical Jurisprudence |
| Midwifery | Hygiene |

N.B.—Students who are exempted from any examination or part of an examination under any exemption clause will have to pay the full fee for that examination.

II—EXAMINATION FOR A LICENTIATE OF THE STATE MEDICAL FACULTY

The Examination shall consist of three parts —

- (1) The Primary Examination,
- (2) The Intermediate Examination,
- (3) The Final Examination

Each of the examinations shall be held twice a year at such times as the governing body shall determine.

THE PRIMARY EXAMINATION

1 Every candidate for the Primary Examination shall apply to the Secretary in the form prescribed by the governing body with a fee of Rs 8 at such time before the examination as may be fixed by the governing body. He shall also produce the following certificates —

- (a) that he has passed the Matriculation Examination or any higher Examination in Arts or Science of a recognised university. The School Final Examination of Indian schools and the High School and Scholarship Examination for European schools or any examination which is accepted by the local Government as equivalent thereto will be accepted as equal to the Matriculation Examination,
- (b) that he has been engaged in medical studies for one academical year in a recognised medical college or school after passing the Matriculation Examination or its equivalent,
- (c) that he has regularly attended since passing the Matriculation or its equivalent a course of 40 lectures in Chemistry and Physics and a practical course of 25 attendances,
- (d) that he is not under 17 years of age on the first of the month in which the examination is held. The certificate shall state his exact age,
- (e) that he is of good character from the head of the medical college or school in which the candidate is a student.

2 Every candidate shall be examined in Chemistry and Physics.

The examination shall be written, oral and practical.

3 A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. A candidate who fails to pass may be admitted to one or more subsequent examinations on payment of a like fee of Rs 8 on each occasion, and on producing a certificate that he has since the date of the last examination received to the satisfaction of the head of his college or school further instruction in the subject, provided that after four failures he shall not be admitted to further examination.

4 In the case of candidates who at the date of the institution of the State Medical Faculty have already been accepted as students of a recognised medical college or school and who are unable to furnish the certificate of preliminary education under clause 1 (a), a certificate from the head of the college or school that they were admitted to the school under the rules at the time in force will be accepted.

Exemptions

- (1) Any candidate who has passed the Preliminary Scientific Examination of any recognised university

or of the State Medical Faculty will be exempted from his examination

(2) Any candidate who has passed the Intermediate Examination in Science or Arts with Physics and Chemistry of a recognised university will be exempted from further examination in these subjects

THE INTERMEDIATE EXAMINATION

1 Every candidate for the Intermediate Examination shall apply to the Secretary in the form prescribed by the Governing Body with a fee of Rs 12 at such time before the examination as may be fixed by the Governing Body. He shall also furnish the following certificates —

(a) that he has been engaged in medical studies for two academical years in a recognised medical college or school and that unless exempted he has passed the Primary Examination at least six months previously,

(b) that he has attended regularly the following courses of lectures and practical class in a recognised medical college or school —

(i) Two courses of 50 lectures each in anatomy and a course of dissections extending over two winter sessions. In these courses the student must have completely dissected the whole body at least once to the satisfaction of his teacher

(ii) Two courses of 50 lectures each in physiology and two practical courses of 25 demonstrations each

(iii) Two courses of 40 lectures each in Materia Medica and a course of instruction in Practical Pharmacy extending over three months, including a practical knowledge of the preparation and compounding of medicines *

2 Every candidate shall be examined in the following subjects —

- (a) Anatomy
- (b) Physiology
- (c) Materia Medica and Pharmacy

The examination shall be written, oral, and practical

3 Any candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. Any candidate who fails to pass may be admitted to one or more subsequent examinations on payment of a like fee of Rs 12 on each occasion, and on producing a certificate that he has since the date of the last examination received to the satisfaction of the head of his college or school further instruction in the subject or subjects in which he has failed, provided that after four failures he shall not be admitted to further examination

4 A candidate who fails in one subject only shall, on payment of Rs 8, be permitted to appear in that subject at the next six-monthly examination only. If he passes he shall be held to have passed the entire examination. A candidate failing to pass or appear under this provision shall be required to appear in all the subjects of the examination

Exemption

Any candidate who has passed the First M B Examination of a recognised university or the Intermediate Examination for the Membership of the State Medical Faculty or the Junior Qualifying Examination of a Government Medical School will be exempted from this examination

* The instruction in Practical Pharmacy may be received at any time before the student enters for examination in this subject and certificates under this subsection will be accepted from the heads of hospitals or dispensaries recognised by the Surgeon General with the Government of Bengal for the training of compounders or from members of the Pharmaceutical Society of Great Britain in actual practice of their profession.

TRANSITORY PROVISIONS

Any candidate whose name is on the rolls of the second year class of a Government Medical School at the date of the institution of the State Medical Faculty shall be allowed to appear within two years of the institution of the said Faculty at a combined Primary and Intermediate Examination for a Licentiate of the State Medical Faculty. The same concession shall be allowed to a candidate who was at the date of the institution of the State Medical Faculty on the rolls of a Medical College or School that has been recognised within a year of the institution of the State Medical Faculty and who has completed a full course of training in Chemistry and Physics as well as in all the subjects for the Intermediate Examination. If such candidates fail in Chemistry and Physics they shall be required to appear at the whole examination again. If they pass in Chemistry and Physics but fail in other subjects they shall be required to appear in the subjects of the Intermediate Examination only.

Any candidate who has passed in Chemistry and Physics at the Junior Qualifying Examination of a Government Medical School shall be exempt from the Primary Examination for a Licentiate of the State Medical Faculty

THE FINAL EXAMINATION

1 Every candidate for the Final Examination shall apply to the Secretary in the form prescribed by the Governing Body with a fee of Rs 30 at such time before the examination as may be fixed by the Governing Body. He shall also furnish the following certificates —

(a) that unless exempted he has passed the Intermediate Examination at least two years previously,

(b) that he has, subsequent to qualifying under (a), regularly attended the following courses of lectures at a recognised college or school —

(i) Two courses of 50 lectures each in (1) Medicine, (2) Surgery, (3) Midwifery and Gynaecology

(ii) One course of 40 lectures in General Pathology

(iii) One course of 40 lectures in Medical Jurisprudence

(iv) One course of 20 lectures in Hygiene, including Vaccination

and that he has attended a course of instruction in Operative Surgery of not less than 20 attendances and received instruction in the Administration of Anæsthetics,

(c) that he has attended one course in Practical Pathology of 25 demonstrations and that in the presence of his professor or teacher he has performed at least four *post mortem* examinations and has, in addition, attended at least six practical demonstrations in the *post mortem* room of a recognised hospital during a period of not less than three months,

(d) that he has attended at least six labours. Certificates on this subject may, at the discretion of the Governing Body, be accepted from any Registered Medical Practitioner,

(e) that he has regularly attended hospital and dispensary practice for two years subsequent to qualifying under (a) and during that period has completed the following —

(i) Six months' attendance in the outdoor department (Medical and Surgical) of a recognised hospital, including vaccination practice

(ii) Six months' attendance in the Medical wards of a recognised hospital, with clinical teaching during such attendance

(iii) Six months' attendance at the Surgical wards of a recognised hospital, with clinical teaching during such attendance.

(iv) Two months' attendance in the Gynecological ward or Out-patient department of a recognised hospital

(v) That he has written up twelve Medical and twelve Surgical cases during the term of Clinical Clerkship and Surgical Dressership

2 Every candidate shall be examined in the following subjects —

- (a) Medicine, including Medical Pathology and Therapeutics
- (b) Surgery, including Surgical Pathology and Operative Surgery
- (c) Midwifery and Gynecology
- (d) Medical Jurisprudence and Hygiene, including Vaccination

3 The examination shall be written, oral and practical

(1) The examination in Medicine and Therapeutics shall consist of—

- (a) A written paper
- (b) An Oral Examination
- (c) A Clinical Examination

(2) The Examination in Surgery shall consist of—

- (a) A written paper
- (b) An Oral Examination
- (c) A Clinical Examination
- (d) Minor Operative Surgery

(3) The Examination in Midwifery and Gynecology shall consist of—

- (a) A written paper
- (b) An Oral and Practical Examination

(4) The Examination in Medical Jurisprudence and Hygiene shall consist of—

- (a) A written paper
- (b) An Oral Examination

4 A candidate who fails to pass or present himself for the examination shall not be entitled to claim a refund of the fee. Any candidate who fails to pass may be admitted to one or more subsequent examinations on payment of a like fee of Rs 30 on each occasion, and on producing a certificate that he has since the last examination received further instruction in the subject or subjects in which he has failed, to the satisfaction of the head of the institution

5 A candidate who fails in not more than two subjects may appear at any subsequent examination in the subject or subjects in which he has failed, provided that he has within the previous six months undergone a further course of instruction in these subjects, to the satisfaction of the head of his college or school. The fee for re-examination shall be Rs 10 in each subject

TRANSITORY PROVISION

Any person who has undergone a full course of training in any medical college or school and has obtained a certificate to that effect from the head of such college or school may, at the discretion of the Governor-in-Council, be granted a certificate enabling him to appear at the final examination for the Licentiate'ship within two years from the constitution of the Faculty, and on his appearing at such examination and satisfying the examiners, he shall be deemed eligible for election as a Licentiate of the Faculty

TRANSFERS AND SENIORITY IN THE JAIL DEPARTMENT

The following announcement is made by the Deputy Secretary to the Government of India,

Home Department, in a letter No 157-C, dated Delhi, 9th January, 1915

It settles an important matter and makes a distinction between transfers (from one Provincial Jail Department to another) made in the interests of the public service, and those at the request of the officer himself. The case arose over the transfer of Capt Barker from Port Blair to Lahore

The Government of India letter is as follows in reply to a letter from the Punjab Government —

"I am directed to invite a reference to your letter No 1300 S (Home), dated the 2nd July 1914, regarding the principles on which the seniority of officers of the Indian Medical Service serving in the Jail Department should be determined

2 Two issues are involved, namely, (i) seniority on the general list of the Jail Department maintained by the Director-General, Indian Medical Service, and (ii) seniority on the various provincial lists. The Government of India consider that the seniority of an officer on the general list should count from the date of his confirmation in the Department, which is regulated, save in exceptional circumstances, by the date of his first appointment to it

3 As regards the seniority of officers on a provincial list, the Government of India consider that the principles laid down for officers in civil medical employ in the Home Department letter No 256-Medl, dated the 29th March 1897, are equally applicable to officers in the Jail Department. Under these principles transfers in the interests of the public service are distinguished from transfers made at the officer's own request. In the former case, an officer already confirmed in the Jail Department should be appointed to the first substantive vacancy that occurs in the province to which he is transferred after all the officers senior to him (*i.e.*, confirmed before him) on the general list have been provided with permanent appointments in the province. The officer's seniority, therefore, in the provincial list will be regulated by the date of his original confirmation on the general list and he will be placed in the provincial list above those officers who, although they were holding permanent jail appointments in the province at the date of his transfer, nevertheless are his juniors on the general list

4 In the case of a transfer made at an officer's own request, the Government of India think that he should be given a permanent appointment in the province to which he is transferred on the principle indicated above for transfers in the public interest, *i.e.*, according to the date of his confirmation on the general list, but he should not, on gaining a permanent appointment in the Provincial Jail Department, supersede any officer already in substantive employment therein even though junior to him on the general list"

USE OF BOILED MILK

THE use of boiled milk is practically imperative in such a climate as India, apart from dangers of its being infected, hence the importance of the following conclusions by Dr Rozer H Dennett of New York (J A M A December 5, 1914)

"1 Clinical evidence of the comparative usefulness of boiled and unboiled milk in infant-feeding is of value and desirable

2 The prolonged use of boiled milk if properly administered does not necessarily cause nutritional

disorders such as rickets, anæmia, malnutrition or poor musculature

3 Scurvy may be avoided when boiled milk feedings are given, by the administration of orange juice

4 Boiled milk does not cause digestive disturbances in normal infants, and is, therefore, not more difficult to digest than unboiled milk

5 Boiled milk aids us in overcoming digestive disturbances

6 The change from boiled milk to unboiled milk may or may not cause digestive disturbances

7 Boiled milk is probably more apt to cause constipation than unboiled milk, but in certain cases the constipation may be overcome while on boiled milk, although it is not always overcome when the boiling is stopped

8 The evidence is not conclusive whether the value of the milk is lessened by boiling or not "

IN a letter (to J A M Association), dated Berlin, October 28th, the writer estimated that of the 9,000 medical men employed in the German armies 100 had been killed, 37 wounded and 16 missing or prisoners. He also stated that out of 4,062 medical men employed in the Franco-Prussian War of 1870-71 only nine were killed and two died subsequently of their wounds. It is evident that all the facts are not yet known as the following extracts show —

"The *Medizinische Klinik*, December 13, says that of the regular army and navy medical corps only one physician has been reported as disabled from sickness since the war began, forty have been severely and 112 slightly wounded, sixty-five have fallen on the field, seventy-eight are missing, and forty-six are known to be in captivity "

And in a letter (dated 8th December) the following passage occurs —

"The mild weather has also had a favourable influence on the health of the troops. The number of diseases due to taking cold has been materially reduced in the West, and especially those affecting the intestinal canal. Frostbites are seldom observed. Even typhoid is restrained within moderate limits, and so far has reached only a fraction of the 75,000 cases which appeared in the war of 1870-1871 in a small force, compared with our present army of millions. Even among physicians, *typhoid has already demanded some victims*. Altogether in the regular lists of losses published, 350 physicians, that is, about 3 per cent, are included, among them, 112 with slight and 40 with serious wounds, 1 is sick, 65 are dead and 124 missing, of whom the majority are prisoners. The latter, it is to be hoped, will gradually return to their mother country in the way of exchange. A few days ago eight French army surgeons and 85 members of the sanitary corps were discharged from the German prison and as many of the medical division of our army will return to us from France "

THE characteristic odour of not-fresh urine is now said to be due to a volatile substance called by Dehn and Hartman (*J Amer Chem Soc* 1914, p 2118) *Urimod* it occurs only to the extent of 1 or 2 in 1,00,000 parts and its empirical formula is given as C_6H_8O

Reviews.

Hand-book of Obstetrics —By KEDARNATH DAS, M D, Teacher of Midwifery, Campbell Medical School, Calcutta, etc., with 376 Illustrations. Published by Butterworth Co (India), Ltd

THE advent of this text-book has supplied a long-felt want and will undoubtedly receive a warm welcome from many students and junior practitioners, but one feels that there is no occasion for the author to confine its usefulness to this country, it is a volume the perusal of which would repay any medical student and is a most reliable text-book for ready reference

The diagrams, most of which are taken from various large standard text-books, are extremely clear and of considerable assistance, the printing is easy to read and the style so fluent and attractive, making the perusal of this volume a genuine pleasure

The subject matter is sound and the reader has the advantage of learning the views expressed by many eminent obstetricians on certain points, and the author has carefully avoided academical discussions, keeping in mind the scope and object for which the book was written

We can strongly recommend this text-book to all medical students and anticipate that a second edition will be required in the near future

Manual of Obstetrics —By EDWARD P DAVIS, A M, M D, Professor of Obstetrics in the Jefferson Medical College, Philadelphia, with 171 Illustrations. Publishers Messrs W B Saunders, Company, 1914

THIS small text-book has been written to give a concise account of modern obstetrics, its perusal is interesting, and in many respects the book is certainly up to date, the diagrams are sufficiently good and the type easy, but as a text-book for students, it seems to lack the quality of being sufficiently explicit for purposes of examination, it is a pleasant essay for a reader who has a previous knowledge of the subject and who is desirous of ascertaining the latest views on this branch of medicine. One is left with the impression that the dangers and difficulties of obstetrics are somewhat exaggerated and that it is inadvisable for the general medical practitioner to undertake the treatment of the various abnormal cases, which one has to meet in every-day practice

Hygiene and Public Health —By B N GHOSH and J I DAS, Calcutta (2nd Edition) Hilton & Co

ABOUT two years ago we had the pleasure of very favourably noticing the first edition of this book and it is satisfactory from many points of

view to see a second and revised edition placed before the public

The new edition has been carefully revised and brought up to date

We have read most of the chapters with pleasure and with profit. If we may single out some chapters as more valuable than others, we might refer to those on animal foods and on the removal of refuse both written from the point of view of Indian conditions, the section on milk is extremely good and points out very clearly the defects of most dairies in India. The byres are "filthy" too often and the process of milking is said to be (and with truth) "disgraceful". The note on *ghee* is very useful and is based on standards adopted in Calcutta.

The chapter on infection and carriers is up to date and there is a good description of mosquitoes. Flies, too, a subject too much neglected in India, are pointed out as potentially and practically dangerous. Fleas, ticks, bugs are also described. The chapters on restraint of infection, disinfection, immunity are quite as good as any we have read, and there is an admirable account of the protective value of vaccination, more useful and necessary in India than in any other country perhaps. Chicken-pox is well described, but we think the very common prevalence of this disease among *adults* in India should be more emphatically recognised. Chicken-pox in India is just as much a disease of adults as is small-pox, and severe attacks of chicken-pox are often, and indeed pardonably, mistaken for small-pox.

We would have welcomed a more complete account of the disputed extent of bovine tuberculosis in India and its doubtful connection with the undoubted considerable prevalence of human tuberculosis in many parts of India, and especially in the Punjab and in Bengal. That tuberculosis is "on the increase" in Bengal we take leave to doubt, but there is no doubt whatever that it is increasingly *recognised* as a formidable factor in Indian mortality. That the *pinda* system is responsible for much tuberculosis we may well agree.

We can again strongly recommend this able and practical manual.

Pharmacy, Materia Medica & Therapeutics — By SIR WILLIAM WHITLA. London, 10th Ed. Demy 8vo. Price 9s. 1915, Baillière, Tindall and Cox.

WE well remember the first edition of this most valuable students' book on materia medica and therapeutics. The distinguished Belfast physician, Sir Wm. Whitla, has written several books well known to the practitioner, but none with greater success than his *Materia Medica*. In no book we know is the student better provided with a chapter on pharmacy than in the present volume.

The tenth edition is adapted to the new (1914) edition of the B.P. and on such it is necessary to the practitioner. This book used in connection, if possible, with the same author's invaluable *Dictionary of Treatment* provides the physician with a reliable and up to date book of reference. Nor is the book confined to the official remedies of the B.P. No less than 120 pages are given to "non-official remedies," and we can strongly recommend this portion of the book. The index of poisons at the end of the volume is most useful. We need say no more. The tenth edition of Whitla's materia medica is as good as any of the former editions and no more than this in its praise is necessary.

The Book of Prescriptions — By E. W. LUCAS F.C.S., London, 10th Ed. J. & A. Churchill. Price 6s. 6d.

THE new or 10th edition of this most useful book comes out adapted to the new 1914 B.P.

We know of no book on the art of prescribing more useful than this, and it is an art which in these days of laboratory training is too much neglected by the medical student. From lack of a practical knowledge of prescribing the young physician is too apt to fall back upon the use of proprietary mixtures, tablets and other "factory-made" physics. This new edition gives numerous and tried prescriptions in both the metric and the older form, in accordance with the new B.P.

We can strongly recommend this practical little book to the senior student and to the young practitioner. It will be found useful and reliable.

Diseases of the Eye — 4th edition, May and Worth. Demy Octavo, pp. viii and 444 with 22 coloured plates and 337 illustrations. Price 10s. 6d. nett. Publishers: Baillière, Tindall and Cox.

THIS edition has been carefully revised and in part re-written. The chapter on vaccines in ophthalmology has been brought up to date by Mr. S. N. Blowning, and Mr. C. Devereux Marshall has written this chapter on colour vision. The subject matter is clearly handled for reference in thirty-three chapters and there is a complete index. The colour plates are admirably life-like, and afford an excellent atlas of pathological appearances. The volume is handy in size and fully meets the aim of the authors of a textbook for students and general practitioners. The chapter on the ocular manifestations of general diseases is particularly happy. Controversial questions are briefly touched on and tersely summarized. Of Smith's intracapsular extraction of cataract, the pronouncement that "the grave risk of loss of vitreous will prevent the operation being commonly employed in Europe" strikes a note of judicial discrimination which is very characteristic of the book. The type is large and clear and the

publishers deservedly share in the success of the work. We can strongly recommend it to our readers.

Invalid and Convalescent Cookery Book—By ALYS LOWTH Longmans Green & Co Price 1s 6d net

THIS seems to the mere man who knows little of the art of cookery to be an excellent book.

It contains some good remarks on cooking—a list of emergency measures, which show that a “breakfast cup” measures half a pint, that 6 “lumps” of loaf sugar go to the ounce.

The recipes are numerous and good, and the whole book is one which can be recommended.

Medical Nursing—By A. S. WOODWARD, M.D. (Lond.) London Ed Arnold, 1914.

THE keynote to this book will be found in the preface where it is said that the nurse “has been elevated from her original position of an automaton to a scientifically educated co-operator.”

We are inclined to think that there is much in this book a bit beyond even the scientifically educated nurse—otherwise the book is very good and the illustrations plenty and useful. There is a good chapter on the nursing of the insane, and that on massage is practical. The portion on invalid cookery might have been developed and is of more value to the nurse than a definition of “Kernig’s sign” or of “leukæmia.”

Surgical Materials and their uses—By ALEX MACLENNAN, M.D. (Glas.) London Ed Arnold, 1915.

THIS book is the outcome of lectures and demonstration to students at the Glasgow Western Infirmary. It is like many other books under various titles to help the resident, the house surgeon, the dressers, &c.

It consists of six sections devoted to bandaging splints, dressings, antiseptics, and asepsis, sutures and ligatures and instruments.

It may be that the old bandaging is a lost art, but there is no doubt that it is well taught in this book. The chapter on antiseptics is good as is also that on instruments.

The book can certainly be recommended to the student, dresser, the junior house surgeon, &c. The illustrations are admirably done.

SPECIAL ARTICLE

I

THE MEDICAL SERVICES IN 1914.

THE one subject of interest to the medical services, as to everyone else, is the war. The R. A. M. C. was, of course, the first of these services to be involved, and is also the one which has played the most important part. But all the medical services have taken their share, and all have already lost some of their members killed in action.

The Territorial organisation introduced within the last ten years has risen to the occasion, and has been of the greatest service in rendering possible the expansion of the medical department of the army to meet the greatly increased demands of general mobilisation. The strength of the R. A. M. C. in January and December is contrasted in the following tables—

| <i>Strength of the R. A. M. C. in 1914</i> | <i>January—December</i> | |
|--|-------------------------|-------|
| Active list | 1,054 | 1,099 |
| Retired officers employed | 65 | 102 |
| Special Reserve | 184 | 661 |
| Temporary officers | | 1,138 |
| Territorials | 1,710 | 2,144 |
| Total | 3,013 | 5,144 |

The December figures show a very large increase. Indeed, if we allow for the fact that the services of nearly 800 of the Territorial medical officers shown in January were only available in the event of a general mobilisation, they are over double those of January.

The number of medical officers killed in action, including those who have died of wounds, between 4th August and 31st December, a period of less than five months, was 44. In the South African War, which lasted over 2½ years, about twelve medical officers were killed, of the R. A. M. C. no less than 27 have fallen, of the Royal Navy 13, (besides three were lost in the *Formidable* on 1st January 1915), of the I. M. S. two, of the West African medical service one, and one of the Australian force which took German New Guinea. Of the 27 officers of the R. A. M. C. who lost their lives, 21 were on the active list, one in the special reserve, four held temporary commissions, and one (Captain Angus Macnab of the London Scottish) was a Territorial.

A striking fact in the distribution of mortality is the disproportionate share borne by the junior ranks. Of 27 officers of the R. A. M. C. killed one was a Lieut.-Colonel, one a Major, thirteen Captains, mostly junior men, and twelve Lieutenants. Similarly, in the Navy, out of thirteen medical officers who lost their lives, all in ships sunk with the greater part or the whole of their complements, nine were surgeons, the most junior rank.

A large number of honours have already been conferred upon officers who have distinguished themselves in the war. Of these honours a fair share has fallen to the R. A. M. C., one V. C., six D. S. O.s, and five appointments to the legion of honour. Captain Ranken, who received the V. C., and Captain Leckie, D. S. O., had died of wounds before their honours were notified. Among the recipients of the new Military Cross, established on 1st January 1915, were five officers, and six warrant officers of the R. A. M. C., also one officer of the I. M. S., Captain K. I. Singh, who had shortly before been killed in action.

The great pressure of work at head-quarters necessitated the appointment, for the first time on record, of a second Director-General of the R A M C, and Sir Alfred Keogh, who completed his five years' tour of office in that post nearly five years ago, was recalled from retirement again to occupy the same appointment in the War Office, while the actual holder, Sir Arthur Sloggett, went on service in France.

The I M S had, at the beginning of the year, a strength of 770, of whom nearly 300 were in military and nearly 500 in civil employ. For twenty years past we have been used to seeing I M S officers in civil employ recalled to military duty in time of war, thus justifying their existence and retention as a reserve for the Army. Recalls on an extensive scale took place for the Chitral campaign of 1895, the Tirah frontier war of 1897-98, and the China war of 1900. But never has such recall been seen, or for that matter been required, on such a scale as in 1914. Some 300 officers of the I M S have rejoined the colours from civil employment, and the civil medical administrations of the various provinces have been almost denuded of their men, only the most important civil medical appointments being still filled by I M S men. Also about fifty retired officers of the I M S have rejoined duty, and were serving in various capacities by the end of the year, chiefly in the hospitals for Indian wounded at Brighton, Brockenhurst, and Bournemouth. Many of these officers had also served previously for some time in the hospital ships. Of these officers about a dozen were, under the rules, liable to recall, the rest had voluntarily come out of retirement. How the officers of the I M S were employed, at the end of the year, it is impossible to state with accuracy, the *Army List* being silent on the point.

Counting regimental officers, and those employed in field, bases and general hospitals, the Indian expeditionary force in France must employ over one hundred. The hospital ships account for forty or fifty more. The expeditions to East Africa and to the Persian Gulf have also taken off large numbers.

The year 1914 saw several developments in the I M S, which are of much importance, though completely overshadowed by the clash of arms. First of these stands the correspondence published in the *Gazette of India* in August, on the "Morley scheme," in which the Indian Government completely withdrew from the position they had taken up, five years previously, as regards the necessity of keeping up the strength of the civil branch of the I M S, and the Secretary of State expressed his agreement with their resolutions. Events more powerful than Government's have relegated these orders to the background. *Inter arma silent leges*. And we must wait till

the end of the war for the effect of the present intentions of Government. The pity of it is that the despatch from India, sent home in 1910, and accepted by the India Office in 1912, was not published two years ago. Had this been done, the recent failure of competition for the I M S, as shewn in the examinations for admission during the last two years, would probably never have taken place. While the war lasts, competition for the I M S cannot be expected. And when it is over, men who have served their country during the war, both Europeans and Indians, will have a prior claim to commissions in the service.

The promotion of Lieutenant-Colonel H. E. Banatvala to Colonel, as Inspector-General of Civil Hospitals in Assam, is also a landmark in the history of the I M S, being the first occasion on which an Indian member of the service has risen to permanent administrative rank. The arrangements made for the separation of the new province of Bihar and Orissa from Bengal, and for the erection of Bengal into a full Governorship, made in 1912, have now been carried into effect in the medical department, by the sanction of an Inspector-Generalship of Civil Hospitals, carrying the rank of full Colonel, for Bihar, and by the promotion of the I G C H in Bengal from Colonel to Surgeon-General, thus bringing the new Governorship into line with those of Madras and Bombay. These arrangements had been made nearly three years ago, but were only sanctioned in 1914, though with effect from 1st April 1912.

At the end of 1914 the strength of the I M S, as shewn in the Indian Army List for January 1915, was 782, viz., Bengal 133, Madras 48, Bombay 32, a total for the old service of 213, and 569 General Service List.

In the R A M C, the highest post in the corps changed hands on 1st June, when Sir Arthur Sloggett succeeded Sir William Gubbins as Director-General, his place in India as Director of Medical Services being taken by Surgeon-General W. Babbie, v c.

During the year, there were five promotions to Surgeon-General and ten to Colonel in the R A M C. In the I M S there were two steps to Surgeon-General, one in Bengal and one in Bombay, and four to Colonel, two in Bengal and one each in Bombay and Madras, besides the notification of the promotion of the I G C H in Bengal to Surgeon-General, and of the appointment of a Colonel to the same post in Bihar, both ante-dated to 1st April 1912.

One exchange took place in 1914, Captain J. B. Hanafin, R A M C, exchanging into the I M S, from 15th July, with Captain F. R. Coppinger.

On the outbreak of the war retirement from the services practically ceased, for the time being, only a few men taking pensions, on account of ill-health.

As usual, a number of distinguished men on the retired list went over to the majority; mostly in the last few months of the year. Of these the most notable was Surgeon-General Sir Anthony Dickson Home, K C B, formerly Director-General of the Army Medical Department, a Crimean and mutiny veteran, who had seen active service in five continents. The British service also lost Surgeon-Generals Sir John Bycole Reade, K C B, who had also served in the Crimea and in the mutiny, and R Lever, and Colonel W Johnston, C B. Of the Bengal Service died, Surgeon-General Sir Annesley DeRenzy, Deputy Surgeon-General E Mackellar, and Surgeon-Major W H Hayes, all mutiny men, Lieut-Colonels O T Duke, D D Cunningham, R C Sanders, and H W Pilgrim. Of Madras men may be mentioned Surgeon-Major A C Macleod, the senior member of the service, Surgeon-General Sir Arthur Branfoot, late President of the India Office Medical Board, and Deputy Surgeon-General W H Harris. Macleod and Harris had served in the mutiny, Harris in the Crimea also.

We should also mention the deaths of Dr T P Fraser, of the West African Medical Staff, and Dr Pockley, of the Australian forces, both killed in action, of Surgeon-General W M Craig, C B, R N, and of two mutiny veterans of the I S M D, Honorary Surgeons C L Fox and C W Briscoe.

I—R A M C

A—Killed in action, and died of wounds

| No | Rank | Name | Date | REMARKS |
|----|------------|--------------------|------------|-------------------------------|
| 1 | Lt Col | C Dalton | 18th Sept | Battle of |
| 2 | Major | E B Steel | 23rd Nov | Aisne in |
| 3 | Captain | F Forrest | 13th Sept | Battle of |
| 4 | Do | T Scotchard | Sept | Aisne |
| 5 | Do | H S Ranken, v o | 24th Sept | Do |
| 6 | Do | M Leckie, D & O | 28th Aug | Battle of |
| 7 | Do | R D O'Connor | 25th Oct | Braï sne, France |
| 8 | Do | M J Lochin | Oct | Retreat from |
| 9 | Do | R H Nolan | 23rd Oct. | M o n s, |
| 10 | Do | R G Kinhead | 31st Oct | Frameries |
| 11 | Do | C P O'Brien-Butler | 1st Nov | Belgium |
| 12 | Do | T McC Phillips | 4th Nov | Battle in |
| 13 | Do | E M Glanvill | 2nd Nov | Flanders |
| 14 | Do | A Macnab | 1st Nov | Do |
| 15 | Do | C T Conyngham | Nov | (Territorial London Scottish) |
| 16 | Lieutenant | J L Huggan | 16th Sept | East Africa |
| 17 | Do | A. K Armstrong | 16th Sept | Battle of |
| 18 | Do | H L Hopkins | 19th Sept. | Aisne |
| 19 | Do. | J F O'Connell | 20th Sept | Do |
| 20 | Do | W O W Ball | 25th Sept | (Tempy) |
| 21 | Do | J Crocket | 25th Sept | Do |

| No | Rank | Name | Date | REMARKS |
|----|------------|---------------|----------|---------------------|
| 22 | Lieutenant | D W Rintoul | 21st Oct | Battle in |
| 23 | Do | R E Porter | Oct | Flanders |
| 24 | Do | G H Chisnell | 24th Oct | Do |
| 25 | Do | H J S Shields | 26th Oct | (Tempy) |
| 26 | Do | M Richardson | 3rd Nov | Poperinghe, Belgium |
| 27 | Do | C C Zies | Dec | Do |
| | | | | (Tempy) |
| | | | | Do |
| | | | | (Special Reserve) |

B—Deaths

| No | Rank | Name | Date | REMARKS |
|----|---------|-----------------|----------|-------------------------------|
| 1 | Lt Col | H P G Elkington | 5 Aug | |
| 2 | Captain | P Farrant | 10th Feb | Sierra Leone |
| 3 | Lieut | D Waidleworth | 24th Oct | (Temporary) Di owned at Havre |

C—Retirements

| No | Rank | Name | Date | REMARKS |
|----|---------|-----------------------|-----------|-------------------------------|
| 1 | S-G | Sir W L Gubbins K C B | 1st June | Director General |
| 2 | Do | O E P Lloyd v o | 1st Jan | |
| 3 | D | G W Robinson C B | 22nd Mar | |
| 4 | Do | W W Kenny K H S | 14th July | |
| 5 | Colonel | T J R Lucas C B | 2nd Jan | On H P |
| 6 | Do | R Porter | 14th Jan | From H P |
| 7 | Do | E Butt | 4th Mar | (on H P since 15th Sept 1913) |
| 8 | Do | M W O'Keeffe | 23rd Apl | On H P |
| 9 | Do | H S McGill | 8th July | From H P |
| 10 | Do | R H S Sawyer | 3rd Aug | (on H P since 4th Dec 1913) |
| 11 | Do | T J O'Donnell, C B | 7th July | Died 24th Oct 1914) |
| 12 | Do | C J Culling | 8th Aug | On H P |
| 13 | Lt Col | A R Aldridge, C S I | 3rd Jan | |
| 14 | Do | M O'D Braddell | 4th Feb | |
| 15 | Do | W Turner | 24th Feb | |
| 16 | Do | F H M Burton | 20th Apl | |
| 17 | Do | M L Hearn | 21st Apl | |
| 18 | Major | W D Erskine | 3rd Jan | (Died 24th Oct 1914) |
| 19 | Do | C E P Fowler | 4th Feb | |
| 20 | Do | F A Stephens | 4th Feb | On T H P |
| 21 | Do | F M M Ommaney | 11th Mar | (F P 4th Aug 1914) |
| 22 | Do | R B Black | 24th May | |
| 23 | Do | S W Sweetnam | 23th July | |
| 24 | Do | A E Milner | 23th July | |
| 25 | Do | F W Lamballe | 19th Dec | On T H P |
| 26 | Do | A E F Hastings | 1st May | Removed |
| 27 | Captain | J A B Sim | 25th July | |
| 28 | Do | R I B Buchanan | 8th Aug | On T H P |
| 29 | Lieut | F D Cairns | 7th Feb | |

D—Promotions

| No | Old rank | Name | New rank | Date | REMARKS |
|----|-----------|------------------|-----------|-----------|---------------------|
| 1 | S G | Sn A T Sloggett | Dir Genl | 1st June | v Gubbins, R |
| 2 | Colonel | W G Bedford | S G | 1st Jan | v Lloyd R |
| 3 | Do | W G Macpherson | Do | 6th Mar | Tempy on Dy Dn Genl |
| 4 | Do | R W Ford, DSO | Do | 1st June | v Gubbins, R |
| 5 | Do | T P Woodhouse | Do | 14th July | v Kenny R |
| 6 | Tempy S G | W G Macpherson | Do | 14th July | To complete Es tabt |
| 7 | Colonel | M W Russell | Do | 15th Oct | Tempy as Dy Dn Genl |
| 8 | Lt Col | C Butt | Colonel | 1st Jan | v Bedford P |
| 9 | Bt Col | R S F Henderson | Do | 2nd Jan | v Lucas R |
| 10 | Lt Col | M W Russell | Do | 14th Jan | v Potter H P |
| 11 | Col, H P | R W Ford, DSO | Do | 6th Mar | v Macpherson P |
| 12 | Lt Col | C C Reilly | Do | 23rd Apl | v O'Keeffe, H P |
| 13 | Col, H P | T P Woodhouse | Do | 1st June | v Ford P |
| 14 | Bt Col | S Hickson | Do | 7th July | v O'Donnell H P |
| 15 | Lt Col | F W C Jones | Do | 14th July | v Woodhouse P |
| 16 | Do | T W Gibbard, KHS | Do | 14th July | On appt as K H S |
| 17 | Do | J Meek | Do | 3rd Aug | v Sawyer, H P |
| 18 | Do | W T Swan | Do | 8th Aug | v Culling, H P |
| 19 | Major | W S Harrison | Bt Lt Col | 4th July | |

E—Honours

| No | Rank | Name | Honour | Date | REMARKS |
|----|--------|--------------|----------------------------|-----------|------------------|
| 1 | S G | A T Sloggett | Knight | 1st Jan | |
| 2 | Do | H G Hathaway | C B | 1st Jan | |
| 3 | Do | W Babbie | K H S | 1st June | v Gubbins R |
| 4 | Bt Col | W H Hocking | K H S | 5th Nov | v Reade, D |
| 5 | Lt Col | T W Gibbard | K H S | 14th July | v Kenny, R |
| 6 | Major | S L Cummins | Officer Legion of Honour | — Oct | |
| 7 | Do | S G Butler | D S O | 9th Dec | |
| 8 | Capt | H S Ranken | V C | 16th Nov | Killed in action |
| 9 | Do | H S Ranken | Legion of Honour Chevalier | — Oct | Killed in action |
| 10 | Do | S E Lewis | Do | — Oct | |
| 11 | Do | J T McEntire | Do | — Oct | |
| 12 | Do | J J O'Keeffe | Do | — Dec | |
| 13 | Do | C C Cassidy | Medjidie 4th Cl | — April | |
| 14 | Do | W I Marshall | Do | — April | |
| 15 | Do | J S Dunne | D S O | 1st Dec | |
| 16 | Do | P Sampson | Do | 1st Dec | |

| No | Rank | Name | Honour | Date | REMARKS |
|----|---------|----------------|--------|---------|-------------------|
| 17 | Captain | S J Stewart | D S O | 1st Dec | (Special Reserve) |
| 18 | Do | M Leckie | Do | 9th Dec | Killed in action |
| 19 | Lieut | H Beddingfield | Do | 9th Dec | |

F—Deaths of Retired Officers

| No | Rank | Name | Date | REMARKS |
|----|-------------|-------------------------|-----------|-----------------------------|
| 1 | S G | Sn A D Home, VC, KCB | 9th Aug | London |
| 2 | Do | R Lewer | 29th Mar | Southsea |
| 3 | S M G | Sn J B C Reade, KCB | 5th Nov | Earl's Court, London |
| 4 | Colonel | W Johnston CB | 26th Dec | Suddenly Maltie, Aberdeen |
| 5 | Do | W A Parker | 4th Mar | St Leonards |
| 6 | Do | H S McGill | 20th Oct | |
| 7 | Brig Surg | E Hopkins | 30th Mar | Llandudlow, Gumarthen |
| 8 | Do | C Mackinnon | 11th July | Eastbourne |
| 9 | Do | J E Clark | 9th Sept | Pimlico, London |
| 10 | Surg Lt Col | J J O'Reilly | 28th Mar | Twyford Abbey Wiltshire |
| 11 | Lt Col | R D Hodson | 30th Jan | Bournemouth |
| 12 | Do | J O Will | 9th Mar | Dunton Green, Sevenoaks |
| 13 | Do | F S Houston | 28th Mar | Greystones, Co Wicklow |
| 14 | Do | J A Shaw | 20th Mar | |
| 15 | Do | S E Duncan | 7th Aug | Fall from window, Brixton |
| 16 | Do | R W Barnes | 6th Sept | Dorchester |
| 17 | Do | W B Day | 11th Aug | London |
| 18 | Do | J E Fanning | 4th Sept | Eastbourne |
| 19 | Do | A A Macleod | 14th Oct | Kensington |
| 20 | Do | E L Maunsell | 11th Dec | Southsea |
| 21 | Major | E D Frummat Brighthurst | 30th Jan | St George's Hosp, London |
| 22 | Do | J G Black | 1st Mar | Portsmouth, Co Antrim |
| 23 | Do | N Marder | 10th July | Exeter |
| 24 | Do | W D Erskine | 24th Oct | Uddingston, Lanark |
| 25 | Surg Maj | W R Keirans | 25th Aug | Birr, Ireland |
| 26 | Captain | C V B Stanley | 15th Mar | Cairo |
| 27 | Asst Surg | G W Buell | 15th Mar | Branksome Park, Bournemouth |
| 28 | Do | W Acton | 8th Aug | West End, Hants |

*II—BENGAL**A—Death*

| No | Rank | Name | Date | REMARKS |
|----|--------|-------------|----------|----------------|
| 1 | Lt-Col | G F W Ewens | 9th Sept | Lahore, angina |

B—Retirements

| No | Rank | Name | Date | REMARKS |
|----|---------|--------------|----------|----------------------------|
| 1 | S G | A M Crofts | 25th May | |
| 2 | Colonel | R N Campbell | 2nd Apl | |
| 3 | Lt Col | J R Adie | 22nd Mar | Extra pension (since died) |

B—Retirements—concl'd

| No | Rank | Name | Date | REMARKS |
|----|--------|------------------------|--------------------|--|
| 4 | Lt Col | H W Pilgrim | 11th May | Extra pen sion died 1st Oct, 1914 |
| 5 | Do | C Duei | 29th Nov (1913) | |
| 6 | Do | J G Hulbert | 12th May | |
| 7 | Do | W E Scott Mon chief | 29th July | |
| 8 | Do | E Wilkinson | 13th Nov | |
| 9 | Do | G Y C Hunter | 25th Oct | |

C—Promotions

| No | Old rank | Name | New rank | Date | REMARKS |
|----|----------|-------------------|--------------|-----------------|-----------------------------------|
| 1 | Colonel | F Grainger C B | S G | 25th May | v Crofts R |
| 2 | Do | G F A Harris | Do | 1st Apl 1912 | New appt (Gazetted in 1914) |
| 3 | Lt Col | F J Drury | Colonel | 1st Apl 1912 | New appt (Gazetted in 1914) |
| 4 | Do | H E Banat val | Do | 2nd Apl | v Camp bell R |
| 5 | Do | W R Ed wards | Do | 25th May | Gai n gei P |
| 6 | Major | T A Gai n gei | Bt Lt Col | 1st Jan | |

B—Honours

| No | Rank | Name | Honour | Date | REMARKS |
|----|---------|-------------------|--------|-------------------|------------------|
| 1 | S G | T Grainger | G S P | 2nd Apl | v Camp bell R |
| 2 | Do | G F A Harris | K H S | 25th May | v Crofts, R |
| 3 | Do | G F A Harris | G S P | 25th May | v Crofts, R |
| 4 | Colonel | R N Camp bell | G S P | 22nd Sept 1913 | |
| 5 | Do | C C Mani fold | C B | 22nd June | |
| 6 | Do | W R Ed wards | C B | 22nd June | |
| 7 | Lt Col | G J H Bell | C I E | 22nd June | |
| 8 | Do | L Rogers | Knight | 22nd June | |
| 9 | Major | J C Robert son | C I E | 1st Jan | |

E—Deaths of Retired Officers

| No | Rank | Name | Date | REMARKS |
|----|-----------|--------------------------|-----------|---|
| 1 | S G | Su A C C De Renzy KCB | 24th Sept | Ealing |
| 2 | D S G | E Mackellar | 27th Oct | Brighton |
| 3 | Colonel | D D Canning ham C I E | 31st Dec | Torquay |
| 4 | Lt Col | R C Sanders | 31st Dec | Farnham |
| 5 | Do | E B Rutledge | 31st Dec | Working |
| 6 | Do | D F Bury | 5th July | |
| 7 | Do | H W Pilgrim | 1st Oct | Brighton cerebral haemori hage |
| 8 | Do | H M Morris | 1st May | Utakamand |
| 9 | Surge Maj | D H Small | 26th Mar | Upper Nor wood Lon don |
| 10 | Do | N J Grant | 27th Sept | Farnham |
| 11 | Do | W H Hayes | 8th Sept | Surrey |
| 12 | Do | O T Duke | 29th Jan | Folkestone |
| 13 | Do | J Reid | 25th Apl | Glasgow |

III—MADRAS

A—Deaths

Nil

B—Retirements

| No | Rank | Name | Date | REMARKS |
|----|---------|---------|----------|---------|
| 1 | Colonel | R B Roe | 15th May | |
| 2 | Major | M Dick | 13th Feb | |

C—Promotion

| No | Old rank | Name | New rank | Date | REMARKS |
|----|----------|--------------------|----------|----------|----------|
| 1 | Lt Col | P C H Stickland | Colonel | 15th May | v Roe, R |

D—Honour

| No | Rank | Name | Honour | Date | REMARKS |
|----|--------|------------------|--------|-----------|---------|
| 1 | Lt Col | W Moles worth | C I E | 22nd June | |

E—Deaths of Retired Officers

| No | Rank | Name | Date | REMARKS |
|----|----------------|-----------------------------|----------|------------------------------|
| 1 | S G | Su A M Bran foot K C I E | 17th Mar | Folkestone |
| 2 | D S G | W H Harris | 11th Dec | Shanklin Isle of Wight |
| 3 | Brig Surg | W J Busted | 27th Apl | Upper Nor wood |
| 4 | Lt Col | E P Frenchman C I E | 19th Mar | Bombay |
| 5 | Surg Ma jor | A C Macleod | 20th Aug | London |
| 6 | Do | M Robinson | 10th Nov | Wordsworth |

IV—BOMBAY

A—Death

| No | Rank | Name | Date | REMARKS |
|----|--------|-----------|-----------|----------------------------------|
| 1 | Lt Col | C M Moore | 23rd July | Quetta acci dental ly shot |

B—Retirements

| No | Rank | Name | Date | REMARKS |
|----|--------|------------------------|----------|---------|
| 1 | S G | H W Stevenson C S I | 10th Jan | |
| 2 | Lt Col | P P Kilkelly | 1st Feb | |

C—Promotions

| No | Old rank | Name | New rank | Date | REMARKS |
|----|----------|----------------|----------|----------|--------------------|
| 1 | Col | R W S Lyons | S G | 11th Jan | v Steven son, R |
| 2 | Lt Col | T E Dyson | Colonel | 11th Jan | v Lyons P |

D—Honour

| N | Rank | Name | Honour | Date | REMARKS |
|---|------|----------------|----------------|----------|------------------|
| 1 | S G | R W S Lyons | G S Pension | 11th Jan | Steven son, R |

E—Deaths of Retired Officers

| No | Rank | Name | Date | REMARKS |
|----|-----------|--------------|-----------|-------------------------|
| 1 | Colonel | H B Briggs | 9th June | Edinburgh |
| 2 | Do | W A Corkeley | 10th May | Eastbourne |
| 3 | Brig Surg | H Atkins | 1st Nov | Weston super mare |
| 4 | Surg Maj | J T Welsh | 10th Sept | |

*V—GENERAL LIST I M S**A—Killed in action*

| No | Rank | Name | Date | REMARKS |
|----|---------|-----------|------|---------|
| 1 | Major | P P Atal | | |
| 2 | Captain | K L Singh | | |

B—Deaths

| No | Rank | Name | Date | REMARKS |
|----|------------|---------------|-----------|------------------------------------|
| 1 | Capt | J H Burgess | 10th June | Eden San- torium, Darjiling |
| 2 | Do | W H Boalsh | 11th May | Quetta |
| 3 | Lieutenant | J E Scudamore | 7th June | Ripon Hos- pital Simla, ever |

C—Retirements

| No | Rank | Name | Date | REMARKS |
|----|---------|------------|----------|--------------------------|
| 1 | Captain | R L Gamlen | 28th Aug | (T H P 24th Nov 1913) |
| 2 | Do | G C Little | 15th Nov | On T H P |

D—Honours

| No | Rank | Name | Honour | Date | REMARKS |
|----|-------|------------------|--------|-----------|---------|
| 1 | Major | E D W Greig | C I E | 22nd June | |
| 2 | Do | C E Sou- than | K I H | 22nd June | |

*VI—ROYAL NAVY**Killed*

| No | Rank | Name | Ship | Date | REMARKS |
|----|----------------|-------------------|-----------|-----------|---------------------|
| 1 | Fleet Surgn | J J Watson | Good Hope | 1st Nov | Battle off Chile |
| 2 | Do | P K Niv | Bulwark | 26th Nov | Chatham |
| 3 | Staff Surgn | G C C Ross | Hawke | 15th Oct | North Sea |
| 4 | Do | H Woods | Monmouth | 1st Nov | Battle off Chile |
| 5 | Surgn | H G Hopps | Aboukh | 20th Sept | North Sea |
| 6 | Do | G W M Custance | Hawke | 15th Oct | Do |

| No | Rank | Name | Ship | Date | REMARKS |
|----|-----------------------|-----------------------|-----------|-----------|---------------------|
| 7 | Surgn | F C Scarle | Good Hope | 1st Nov | Battle off Chile |
| 8 | Do | A J Tomkin son | Monmouth | 1st Nov | Do |
| 9 | Do | W Miller | Bulwark | 26th Nov | Chatham |
| 10 | Surgn Re- serve | A E Tur- bull | Cressy | 20th Sept | North Sea |
| 11 | Do | F L J M de Verteul | Good Hope | 1st Nov | Battle off Chile |
| 12 | Surgn R N V R | R T Biot- chie | Bulwark | 26th Nov | Chatham |
| 13 | Surgn, tempy | J F D Wat- son | Hawke | 15th Oct | North Sea |

VII—OTHER MEDICAL MEN KILLED

| No | Name | Date | REMARKS |
|----|-------------------------|----------|---|
| 1 | Dr T P Fraser | 5th Sept | West African Medl Staff, in Cameroons |
| 2 | Capt B C A Pockley | Sept | Australian Medl Staff, in New Guinea |
| 3 | Dr S N Crowther | 18th Oct | Despatch rider, in battle in Flanders |
| 4 | Lieut W E Mart- land | 18th Dec | 3rd Seaforth Highland- ers, in battle in Flanders |

*Correspondence.**DATE OF COMMISSION I M S*

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Reference my letter (August 1914 number) re the date of my batches commission. The following is the reply I have received—

'I am directed to state for your information that the Regulations for the I M S Examination are apparently issued annually, and there seems to be little doubt that you competed under the Regulations dated May 1906. In accordance with para 9 thereof your commission should date not from the date on which the result of the Entrance Examination was announced but from the date in which your course of instructions commenced at the Army Medical School etc. The date of your commission is 1st September 1906 which is in accordance with the Regulations and therefore correct. The D G, I M S agrees with the above.'

Yours, etc

S HAUGHTON

See Captain Haughton's letter in "I M G," August 1914, p 330

It therefore now appears that there is nothing fixed about such an important date as that of an I M S officer's first commission, e.g.—

The date of one batch is 1st February 1906 and the next batch is dated not 6 months later but 1st September 1906 or 7 months later.

Of Captains and Lieutenants I M S the Army List shows their dates of first commission as follows—

| | |
|--------------------|-------------------|
| 1st September 1902 | 30th January 1909 |
| 31st January 1903 | 31st July 1909 |
| 31st August 1903 | 30th January 1910 |
| 30th January 1904 | 29th July 1910, |
| 1st September 1904 | 28th January 1911 |
| 1st February 1905 | 29th January 1911 |
| 1st September 1905 | 27th January 1912 |
| 1st February 1906 | 27th July 1912 |
| 1st September 1906 | 25th January 1913 |
| 2nd February 1907 | 26th July 1913 |
| 27th July 1907 | 31st January 1914 |
| 1st February 1908 | 1st August 1914 |
| 1st August 1908 | |

The above dates are enough to show that it is a mistake to imagine that batches are separated by 6 months. The exact

date is a trifling matter in itself, but it becomes of considerable importance when some men get accelerated promotion to be Majors and 8 years later to be Lieutenant Colonels. Take the case—two officers with first commissions dated respectively 1st September 1906 and 1st February 1907 (5 months' interval). One or more of the batch of 1st February 1907 get 6 months' accelerated promotion and become Majors on 1st August 1918 and so become senior by one month to those of the batch of 1st September 1906 who did not happen to get accelerated promotion. It was never contemplated that a mere arbitrary date should lead to such an anomaly.

In these busy times of War such matters are of little importance but we are sure when peace comes again the Government of India will attend to this matter. The only real fair way of counting the date of first commission is to make it count for the 1st day of the month after that on which the examination is held and to fix the dates as 1st August and 1st February.—ED, I M G

ACCELERATED PROMOTION THE WAR AND STUDY LEAVE

To the Editor of THE INDIAN MEDICAL GAZETTE "

SIR—Might I venture to bring before the notice of the authorities that it would be a boon to some of us if accelerated promotion were given to all I M S officers who complete 11½ years' service during the war? It has been hard enough to get leave in the past (personally I've managed to get one year's furlough on medical certificate in eleven years' service after repeated refusals), but what it will be like in the future it is hard to form any idea.

Abnormal conditions require abnormal treatment and it is hard for officers to be penalized for no fault of their own.

I am Sir, etc., etc,
H W

FRANCE
27th January 1915

PLAGUE AND RATS

To the Editor of THE INDIAN MEDICAL GAZETTE "

SIR,—If Captain Neelor is anywhere in India at the present time it might interest him to answer the following question viz how is it that Mandalay is the only town in Burma in which the incidence of Bubonic Plague was brought down to *Nil* by a simple method of steady rat destruction combined with measures such as the improvement of dwelling houses and the better storage of grain to lessen the rat population? Admittedly the I M S is merely advisory in such matters, but for what it is worth I venture to express the following opinions viz—

(i) That in years to come it will be recognised that the one and only method of dealing successfully with Bubonic Plague is rigid and systematic rat destruction.

(ii) That Local Governments will come back to this method once more after having wasted the time and the energy and the valuable training and experience of the men employed on this work particularly the trained headmen of gangs and the rat catchers and likewise the money spent already—because it is really wasted in view of the fact that the method was given up just at the time when it should have been driven for all it was worth, and

(iii) That the work done in Mandalay will be cited as an example of what can be achieved by hard and continuous common sense work.

Yours faithfully,
HODGKINSON LACK,
CAPT, I M S

SPINAL ANÆSTHESIA

To the Editor of "THE INDIAN MEDICAL GAZETTE "

SIR—As one who has been using spinal anaesthesia of late, it would be of interest to hear from other users what disadvantages they have experienced in its use and especially whether they have employed it in children, and of what age and for what purposes. One would think that for stone in children it would be ideal, as the relaxation is so complete but I believe text books caution surgeons against using it in the very young.

One's own experience has been small and so extremely gratifying that one feels one would like to know more about the dangers, which doubtless are real.

Formerly I obtained the solution (Barker's 5% glucose and 5% stovaine to 1 cc) from London in capsules, but lately the Director of the King Institute (Gumdy, Saidapet Madras

has kindly prepared them for me and they have acted very much more promptly than those obtained from London probably through being fresher. I have had no experience with any other solution than Barker's though I believe some hospitals use novocaine with satisfaction.

I am, etc,
J RUTTER WILLIAMSON, M D

INJECTIONS OF CYANIDE OF MERCURY

To the Editor of "THE INDIAN MEDICAL GAZETTE "

SIR,—I have noticed on several occasions that writers have mentioned the use of subconjunctival injections of cyanide of mercury, and have referred to the painfulness of the procedure. One writer said it was needful to give a large dose of opium or an injection of morphia afterwards and another went so far in a recent publication as to recommend that the patient be kept for some considerable time under chloroform afterwards to prevent the pain.

I am surprised that no one seems to have thought of using dionine along with the cyanide of mercury. We have used 1 in 4,000 mercury cyanide with 2% of dionine for several years past and have never seen any great pain then. In a few cases where the patient was very nervous I have made it 4% but as a rule 2% is ample to abolish any after pain from the injection.

And dionine furthermore has the advantage of adding to the stimulating power of the injection upon the lymphatic supply which is, I take it, the chief cause of its value in eye conditions.

I am, etc
J RUTTER WILLIAMSON, M D

IODINE IN VACCINATION

To the Editor of THE INDIAN MEDICAL GAZETTE "

SIR,—For some time past several letters have appeared in the *Indian Medical Gazette* by various writers about the efficiency of Tr of Iodine in vaccination. While most of your correspondents have agreed to a great extent in accepting this simple method of vaccination yet considerable diversity of opinion prevails as to the actual results obtained in different hands. The Health Officer of Calcutta, in his very interesting report for the year 1913, gives a comparative table of the value of—

(a) Skin prepared in the usual way and
(b) Skin painted with Tincture of Iodine,
while crediting 90 per cent of success to the former method he gives only 36 per cent to the latter.

The Tr of Iodine method has given quite satisfactory results in my hands in Srinagar, and if space permits you may kindly insert the following table in your esteemed journal. Certain cases were done personally by me. Most of the rest were inspected by me after being vaccinated with pustules on and for the rest I had to depend on the reports of the head vaccinator which I believe to be true—

Report on the result of vaccination performed by painting surface with Tr of Iodine—

| No | Age | Total No of persons vaccinated | Total No of insertions originally made | Total No of persons with vesicle | Unknown cases | Total No of successful marks | REMARKS |
|----|---------------------|--------------------------------|--|----------------------------------|---------------|------------------------------|---------|
| 1 | Under one year | 52 | 208 | 3 | 7 | 160 | |
| 2 | From one to 6 years | 33 | 332 | 8 | 7 | 263 | |
| 3 | Above 6 years | 51 | 4 | | | | |
| 4 | Revaccination | 10 | 30 | 6 | 4 | | |
| | TOTAL | 146 | 574 | 17 | 18 | 423 | |

This gives us the number of successful insertions as 75 per cent.

Yours truly,
K BHUSHAN,
D PH (Lond) L R C P & S (Edin),
Health Officer, Srinagar

THE USE OF SIR ALMROTH WRIGHT'S VACCINE BOTTLES FOR KEEPING HYPODERMIC SOLUTIONS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—In order to ensure as great a sterility in hypodermic medication as possible glass capsules (under various proprietary names) each containing single doses of the particular preparation, have been put on the market in place of the tabloids. In practice the disadvantages attending these devices are—

- (1) The space the capsules occupy,
- (2) The fragility of the containers,
- (3) Chances of accidental contamination in filling the capsule and breaking the neck thereof,
- (4) Assistance required in holding the capsule while drawing the contents into the syringe,
- (5) The difficulty of obtaining the capsules in India (except in presidency towns),
- (6) The cost especially in the treatment of malaria and in hospital practice and even in general practice.

To obviate these difficulties I am now using Sir Almroth Wright's rubber capped vaccine bottles. The application of this method to hypodermic medication of the Phru macopeal preparation occurred to me under the following circumstances.

About October last there happened to come under my treatment an unusually large number of malarial cases resistant to quinine by the mouth and giving negative result with typhoid and paratyphoid bacilli. The urine of these cases gave a positive reaction by the zinc acetate method described by Acton. In these cases I commenced administering quinine bihydrochloride hypodermically. The few quinine capsules that I had were used up and none were available in the station. The effect of the hypodermics was very encouraging and I had no more capsules for treating my other patients. This difficulty in obtaining fresh capsules suggested to me the application of the vaccine bottle method for hypodermic medication. In about two months I used more than 110 doses from the vaccine bottles and had not a single accident. The ease and convenience of administration from such bottles does not require any advocacy.

It would not be out of place to give a short description of the method of preparing the solutions for hypodermic medication and putting them in the bottle, etc. The method I adopt is as follows—

1. Make the solution of the required alkaloidal salt in distilled water (e.g. 3 grs. of quinine bihydrochloride to 1 c.c. or even $\frac{1}{2}$ c.c.) and filter.
2. Charge a thoroughly cleaned and sterilised vaccine bottle with the solution (1). Cap the bottle with a thick rubber cap.
3. Thrust a small section of hollow wire or a fine hypodermic needle through the cap near the edge to serve as an air vent.
4. Sterilize the bottle and contents in an autoclave.
5. After sterilization and cooling, pull out the wire or the needle, and seal the hole with collodion.
6. Melt some hard paraffin and let it boil, then dip the rubber capped neck of the bottle into the melted paraffin. This would prevent any possible leakage about the neck or top and also be a protective layer for the rubber cap (a great desideratum in the tropics).

The Method of Use—Sterilise the surface of the rubber cap by transferring to its surface a drop of undiluted IysoI and then—turning the bottom of the bottle upwards—puncture through the rubber with the needle of a sterilized hypodermic syringe and withdraw the desired quantity of the solution. The hole seals itself and no collodion or reparaftining is necessary which is one of the advantages of such cap.

It is needless for me to claim any originality except for the application of Sir Almroth Wright's vaccine bottles for hypodermic medication. On the battle field in particular where morphia is the sheet anchor of the First Aid Surgeon such an arrangement of keeping the morphia solution would be a great advantage over the glass capsules or the tabloids.

Yours, etc.,

S N GORE,

L.M. & S. (Bom Univ.),

First Assistant to the Chemical Examiner and Bacteriologist United Provinces and Lecturer on Chemistry and Physics Alga Medical School

DATED AGRA,

The 26th January 1915

THERAPEUTIC AND LITERARY NOTICES

DR GIMLETTE has just completed a new book on "*Malay Poisons and Charm Cures*," which throws interesting light upon the witchcraft of the medicine man, and is of scientific interest regarding the medicines poisons and their antidotes of the Federated Malay States. The author has been 18 years in this district with special facilities for studying the subject. The work will be published by Messrs J & A Churchill, who also announce the following two new editions for publication.

A Text Book of Diseases of the Skin, by Dr J H Sequena. Physician to the Skin Department at the London Hospital. New plates have been added to the existing ones, which are colour photographs of cases under the care of the author.

The Difficulties and Emergencies of Obstetric Practice, by Mr Comyns Berkeley and Mr Victor Bonney. Obstetric Surgeons to the Middlesex Hospital. A feature of this book is the numerous illustrations which are all original and drawn by a medical man.

Messrs Churchill also publish the new 5th Ed. of Sir Henry Morris' *Human Anatomy*, which we are glad to see uses the anglicised form of the B N A nomenclature. 160 new illustrations have been added.

Squire's *Pocket Companion* to the B P 1914 has just appeared, as handsome and complete a volume as ever. We hope to fully notice it next month.

THE AMBULANCE CONSTRUCTION COMMISSION

This is the first great war in which field motor ambulances have been extensively used. It was inevitable that many defects should be found in existing types and in various quarters experts began to ask whether something could not be done to standardise the patterns and to improve the type. At the instance of Mr Henry S. Wellcome, the founder of the Wellcome Bureau of Scientific Research a Commission has been formed and the names of members show at once that the matter is regarded as of first importance by those most intimately connected with the welfare of the wounded soldier.

Sir Frederick Treves whose long experience and distinguished service specially fit him for the task has consented to be the Chairman. The Admiralty is represented by the Director General of the Medical Department, R.N., while the Quarter Master General to the Forces and the Acting Director General Army Medical Service represent the War Office. The British Red Cross Society is, of course, represented by Sir Frederick Treves and the St John Ambulance Association by Sir Claude Macdonald and Sir John Furley. The remaining members are all experts. This commission will first and foremost act as a judging committee for the award of prizes of the value of £2,000 provided by the Wellcome Bureau of Scientific Research. These prizes are offered for the best designs of an ambulance body which shall fit a standard pattern motor chassis for field motor ambulances. The last day for the receipt of competing designs is June 30 1915. It is hoped that the competition will bring in a number of ingenious designs from which the ideal field ambulance body will be evolved.

MESSRS C J HEWITT & Co London, send us a useful pamphlet entitled "Notes on the B P 1914," which gives an excellent synopsis of the changes in the new edition—a subject we have already dealt with in our March issue. Messrs Hewitt & Co have now ready all preparations according to the new B P.

'TABLOID' TRIANGULAR BANDAGE

THE use of the triangular bandage in first aid work is well recognised and it has been customary to print upon the fabric of the bandage illustrations representing the methods of application. A very striking advance in the quality and clearness of the pictorial representations has recently been effected in connection with the 'Tabloid' Triangular Bandage. The designs are plain, precise, complete, and in accordance with the latest practice. 'Tabloid' Triangular Bandages are issued by Burroughs Wellcome & Co, in packets of two.

MESSRS BUTTERWORTH & Co (India), Hastings Street, Calcutta, announce the publication of Lt Col C F Mason's *Handbook of the Hospital Corps of the U S Army*—Price Rs. 15, profusely illustrated.

Service Notes.

WAR AND SERVICE NOTES

SURGEON GENERAL G F A HARRIS, CSI, FRCP, MD, IMS Surgeon General with the Governor of Bengal, retires after 3 years' service in that rank (with effect from 1st April 1912), on 1st April 1915, and is succeeded by Colonel **W R Edwards CB, CMG, IMS** who officiated as Inspector General of Civil Hospitals in Bengal for 8 months in 1913.

A notice of the distinguished career of Surgeon General Harris will appear in our next issue.

A **LULL** in the fighting took place in January. From 8th to 16th January the number of casualties reported was 69 of whom 30 were killed, 35 wounded, four missing. No medical officers' names were included.

On the 18th January a somewhat longer list was published. British officers five killed, six wounded, and one missing; British officers of the Indian Contingent three killed, three wounded, and one missing; Indian officers six killed, two wounded, the above all in France; one British officer wounded in the Persian Gulf, and two in East Africa, a total of thirty casualties for the day, there were no medical officers among them.

On the 19th and 20th eighteen casualties were reported: seven officers killed, seven wounded, two missing, and two prisoners. Among the last it was stated that Captain **A D O'Carroll, RAMC** (formerly reported as missing) was a prisoner.

THE new Family Pension Fund for Officers of the Indian Army **I M S &c** came into force on 1st January 1915. It is entitled the "Indian Military Widows' and Orphans' Fund," and practically speaking takes the place of the Indian Military Family Pension Fund to which all **I M S** officers are subscribers.

We shall give more details of this new Fund in a subsequent issue. The regulations appear in the *Gazette of India* (No 307, p 824, February 1915) of 27th February 1915.

H M S "VIKOR," formerly the tourist cruising steamer *Viking* was lost with all hands probably by striking a mine on or about the 20th January 1915. She carried one medical officer, Surgeon **Vernon Lickfold Matthews**. He was educated at London Hospital, took the **M R C S** and **L R C P** London in 1906, and subsequently filled the posts of House Surgeon at that hospital, of House Surgeon in the ear, nose and throat department of the same hospital, and of clinical assistant to medical outpatients at the Great Ormond Street Hospital for sick children. He entered the Navy as Surgeon on 19th May 1911 and joined the *Viktor* on the 25th November 1914.

FOR the eight days 20th to 28th January inclusive the number of casualties among officers reported was only 46 for the whole period, 18 killed (one in East Africa), 27 wounded, and one missing. No medical officers' names were included.

A NOTE in the *Times* of 28th January says that since their arrival in Europe the casualties in the Indian Expeditionary Force had amounted to 10,000 killed, wounded, missing, and prisoners including 228 British officers.

THREE officers of the **R A M C** Captains **C T Edmunds** and **E S B Hamilton**, and temporary Lieutenant **W S Danks** and two medical men serving under the British Red Cross Society, **Drs L J Austin** and **A R Elliott** all of whom had been captured and detained as prisoners of war have been released and reached England on 12th January.

Drs Austin and **Elliott** served in the first Belgian Red Cross unit and were taken at Havelange near Namur on 17th August. They were at first suspected of being spies and were tried as such but acquitted having succeeded in convincing the court that they were medical men. They were confined as prisoners at Cologne, Torgau, Burg and Magdeburg, successively.

CAPTAINS EDMONDS and **HAMILTON** were attached to the 7th Field Ambulance, and were captured at Mons on 23rd August, Captain **Edmunds** being wounded. Captain **Hamilton** was employed for a time in treating the wounded, both German and English. Both were sent after a few days to Torgau, Lieutenant **Danks** belonged to the 14th Field Ambulance, and was taken prisoner near Soissons on 9th September. He was also employed for some days in treating German wounded, was then sent to Chrusny, and on 28th September transferred to Torgau.

DEPUTY SURGEON-GENERAL GEORGE ALDER WATSON, Bengal Medical Service, retired, died at Cheltenham on 12th

January 1914, aged 83. He was born on 18th June 1831, educated at Guy's, took the **M R C S** and **L S A** in 1853 and soon after entered the Army Medical Department as a temporary Assistant Surgeon for the Crimean War, in which he served at the siege of Sebastopol. He entered the **I M S** as Assistant Surgeon on 4th August 1855, becoming Surgeon on 4th August 1867. Surgeon Major on 1st July 1871. Brigade Surgeon when that rank was introduced on 27th November 1879 and retired with a step of honorary rank on 7th December 1885. In the Mutiny he served in Central India at Mhow at the siege of Dhar and in the actions at Mundisur and Garwah receiving the Mutiny medal with the Central Indian Clasp. In the Afghan war of 1878-79 he served with the 19th Bengal Lancers under Sir Donald Stewart in the advance to Kandahar and capture of the fort of Kelat-i-Ghulzai receiving the medal. For the last five years of his service he was medical store keeper at Allahabad.

THE following extracts are from the reports of General Delamain and Sir A A Buxton on the operations of **I E Force 'D'** at the head of the Persian Gulf which is published in the *Gazette of India* (No 205 p 361 dated 27th February 1915).

Medical—Field Ambulances were allotted as follows—

| | 17 | B F A | 125 | Beriet Sub Divn only |
|--------------|----------------|-------|------------------------------------|-----------------------|
| 16th Brigade | $\frac{17}{B}$ | | $\frac{125}{A B C}$ | $\frac{I F A}{I F A}$ |
| 18th Brigade | $\frac{16}{C}$ | | $\frac{126}{A B D}$ | $\frac{I F A}{I F A}$ |
| Unallotted | $\frac{16}{D}$ | | $\frac{125}{D}$ and $\frac{26}{C}$ | $\frac{I F A}{I F A}$ |

Sick and wounded will be carried with the force by these medical units.

The work of bringing in the wounded continued far into the night, and one ambulance party actually remained out all night, in spite of the fact that the enemy were firing on our pickets at intervals. I desire to pay a very high tribute to the personnel of the medical services both for efficiency of organization, and for devotion to duty. In addition to our own men a large number of wounded Turks and Arabs had to be cared for and conveyed on board the transports, at a spot where shelving mud flats and a strong current made boating operations extremely troublesome and at times even hazardous.

Extract from Reports of Colonel **P Hehir I M S** Assistant Director, Medical Services Indian Expeditionary Force "D" in connection with the Service under his command up to the 20th November 1914.

I wish to bring to notice the especially excellent work done by the following Medical Officers during the engagement of the 17th instant—

Captain **Wright I M S**, 126th Indian Field Ambulance
 Captain **Hislop I M S**, 126th Indian Field Ambulance
 Captain **Lambert R A M C**, 17th British Field Ambulance
 Lieutenant **Allnutt, I A M C**, Medical Officer, Dorset Regiment

The undermentioned Assistant Surgeons and Sub Assistant Surgeons did conspicuously good work in attending the wounded under heavy fire on the 17th November 1914, and are recommended for promotion as stated opposite their names—

3rd Class Assistant Surgeon **J H S Hutton** to 1st Class Assistant Surgeon
 4th Class Assistant Surgeon **J H T Pacheco** (wounded) to 3rd Class Assistant Surgeon of three years' standing
 No 282 1st Class Sub Assistant Surgeon **V U R Pandit**, 14th Rifles to 2nd Class Senior Sub Assistant Surgeon
 No 315 2nd Class Sub Assistant Surgeon **Shaikh Azimuddin Shaikh Ismail**, to 2nd Class Senior Sub Assistant Surgeon

SOME interesting particulars are to hand concerning the organization of the Australian Medical Services in Egypt. The Australian Medical Services are organized so as to correspond as near as practicable with the organization laid down for the Imperial Services, thereby enabling the Australian units at once to take their place side by side with the Medical Services in any part of His Majesty's Dominions.

At the outbreak of the war three field ambulances and one light horse field ambulance (the latter corresponding to a cavalry field ambulance) were mobilized on war establishment complete in every detail as to personnel, equipment, vehicles and horses. Almost simultaneously with this the Medical Services required for lines of communication were also set going comprising one clearing hospital, two stationary hospitals and two general hospitals. An additional light horse field ambulance and field ambulance were also mobilized. All these units correspond as regards personnel, equipment, nursing staff and accommodation for patients with those laid down for the Imperial Services. The complete units will afford accommodation for over 2,000 patients.

The personnel is drawn not only from medical officers on the active list but from those also on what is known as the Australian Army Medical Corps Reserve. Every State from Queensland to Western Australia, has sent in its quota, the general principle being that each unit will be complete in its equipment and transport.

The head of the medical services in Australia is Surgeon General W D C Williams C B, the Director General of the Medical Services, Australian Military Forces. The medical services in each military district are under the administration and command of a principal medical officer who is responsible to the Director General for all matters appertaining to his command. The senior officers are—In the first military division (Queensland) Lieutenant Colonel Sutton, second military division (New South Wales) Colonel Fiaschi D S O, third military division (Victoria) Colonel C Ryan V D, fourth division (South Australia) Lieutenant Colonel Ramsay Smith, fifth division (Western Australia) Lieutenant Colonel White, sixth division (Tasmania) Lieutenant Colonel Giblin. Five of these officers are now serving with the Australian medical units.—*Times*, 1st January.

LIEUTENANT COLONEL J FISHER, D S O Indian Medical Service (Bengal) an Agency Surgeon of the 2nd Class, and Residency Surgeon Jampur, is appointed temporarily to hold visiting charge of the offices of Agency Surgeon Eastern Rajputana States and Agency Surgeon Kotah and Jhirlawar, in addition to his own duties, with effect from the 29th December 1914 and until further orders.

MAJOR W M ANDERSON, Indian Medical Service Medical Officer IV (Quetta) Division, Quetta is appointed to hold charge of the current duties of the office of the Civil Surgeon, Quetta, in addition to his own duties with effect from the 18th November 1914 and until further orders.

CAPTAIN S T CRUMP I M S is appointed to be Assistant Medical Superintendent of the Rangoon General Hospital sub *pro tem*, with effect from the 27th October 1914.

MR H C GHOSH Senior Assistant Surgeon assumes charge of the medical duties of the Borstal Central and Female Jails, Lahore on the forenoon of the 2nd January 1915, relieving Assistant Surgeon Lala Ram Nairan.

WE regret to have to record the death in London of Lieutenant-Colonel Malcolm A Ker I M S. He was on military duty at first with the Hospital Ship *Loyalty* and contracted dysentery.

Lieutenant Colonel Ker entered the service on 31st March 1887, was promoted Lieutenant Colonel on 31st March 1907, and put on the Selected List on 30th June 1913. His last appointment before the war was the medical charge of the 2/5th Gorkhas.

DR PREM NATH BERRY M B C M, is granted a temporary commission in the I M S from 15th November 1914.

WITH the previous sanction of His Excellency the Viceroy and Governor General and under the provisions of the Indian Councils Acts 1861 to 1909 and of the Regulations published in Legislative Department Notification No 67 of the Government of India, dated the 21st November 1912 the Lieutenant Governor appoints Colonel Arthur Owen Evans I M S Inspector General of Civil Hospitals Burma and Dr Archibald Robert John Douglas M D F R C S Chief Medical Officer Burma Railways to be members of the Council of the Lieutenant Governor of Burma for the purpose of making Laws and Regulations as persons having expert knowledge of the legislation proposed concerning the registration of medical practitioners in Burma and directs that they shall hold office for six months.

THE following promotions have been ordered in the Civil Medical Department, Burma—

Major E R Rost I M S to be a first class Civil Surgeon from the 12th September 1914, the date on which he returned from leave.

Major F A L Hammond I M S to be a first class Civil Surgeon sub *pro tem* from the 28th November 1913 the date on which Lieutenant Colonel C Duer I M S retired to the 11th September 1914 and to continue officiating as a first class Civil Surgeon from the 12th September 1914 to the 18th November 1914, *vice* Lieutenant Colonel R H Castor, I M S on leave.

THE King has been graciously pleased to confer the new Decoration of the *Military Cross* on Captain K I Singh, V B, I M S, who has been killed in action.

THE Indian Order of Merit has been conferred on the following medical men of the Indian Army—

47th Sikhs

SENIOR SUB ASSISTANT SURGEON PANDIT SHANKER DAS (attached)

For cool courage in attending wounded under heavy fire at Neuve Chapelle.

31st Sikh Pioneers

SUB ASSISTANT SURGEON HARNAM SINGH (attached)

On 23rd and 24th November For great courage and disregard of danger in removing wounded under heavy shrapnel fire from the regimental aid post and with the help of one other man carrying seven wounded men to a place of safety.

31st Poona Horse

WARD ORDERLY MADHU

On 2nd November For gallantry in carrying Risaldar Rathore Hamir Singh who was wounded under heavy fire to a first aid post and then returning to his place in the firing line.

SIR W R CROOKE LAWLESS, R A M C (ret'd) who was on the staff of Lord Minto when last in India, is now in command of the British Red Cross Hospital at Netley. A London paper, *The Hospital* (January 16th) imagines that he was Surgeon to the Viceroy of Ireland.

MR ANGUS MACNAB the consultant for ophthalmic cases to the institutions of the Metropolitan Asylums Board was reported to have been killed while serving at the Front with the London Scottish Territorial Regiment, but according to a later report he was not killed but is a prisoner of war in Germany. In either case the Board found it necessary that arrangements should be made for his duties to be carried out in his absence. The Asylums Committee communicated with Mr Treacher Collins the Board's ophthalmic surgeon, who after interviewing two candidates recommended by him appointed Mr L J Pisani, F R C S Eng, to the post until March 31. Mr Pisani is at present ophthalmic surgeon at the Metropolitan Hospital and chief clinical assistant at the Royal London Ophthalmic Hospital. He was Llewellyn scholar and assistant demonstrator in anatomy and physiology at Charing Cross Hospital and clinical assistant in the ophthalmic department of Charing Cross Hospital. He is a Fellow of the Royal Society of Medicine and a member of the Ophthalmological Society. Mr Pisani is a Lieutenant-Colonel (retired) in the I M S. During his residence in India for over twenty years, he had considerable operative experience. (*The Hospital* Jan 16)

THE King has approved the confirmation of the commission of the undermentioned Lieutenant on probation of the Indian Medical Service, with effect from the 31st January 1914—

Monindranath Das

THE King has approved the grant of the temporary rank of Lieutenant in the Indian Medical Service to the undermentioned gentleman—

James Robert Hall Wilkie M D Dated 22nd December 1914.

HIS EXCELLENCY THE GOVERNOR GENERAL OF INDIA is pleased to confer the Volunteer Officers' Decoration upon the undermentioned officer—

1st Battalion, Calcutta Volunteer Rifles

The Hon'ble Surgeon General Sir Charles Purdey Lukis, K C S I M D F R C S A H S I M S

LIEUTENANT COLONEL D M DAVIDSON I M S Civil Surgeon Lahore is appointed to be Professor of Midwifery Medical College Lahore in addition to his own duties, with effect from the 1st December 1914.

CAPTAIN R H BOTI M B F R C S I M S is appointed to be Professor of Surgery Medical College Lahore substantially *pro tempore* with effect from the 1st December 1914.

THE following promotions are made, subject to His Majesty's approval—

Captains to be Majors

Charles Gibbons Seymour
Thomas Corrie Rutherford
M D
Ernest Charles Taylor M B,
Alfred Whitmore M D,

Dated 31st January 1915

These officers entered the service with date of first Commissions from 31st January 1903.

LIEUTENANT COLONEL VIVIAN GODFREY DRAKE BROCK man has been permitted by the Most Hon'ble the Secretary

of State for India to retire from the service, subject to His Majesty's approval, with effect from the 13th February 1915

By an unfortunate blunder in the Indian Army List (Jan'y 1915 p 854) this officer was shown as "killed" in action on 13th February 1915 which is the date of his retirement. He has been at home on sick leave

THE services of Major J L Majoribanks M D D P H (Edin), I M S are replaced temporarily at the disposal of the Government of India for employment on military duty

THIRD GRADE CIVIL ASSISTANT SURGEON IKRAM ALI SUFI I M S in charge of the Main Hospital Bhandara is appointed to officiate temporarily as Civil Surgeon Bhandara

ON relief by Civil Assistant Surgeon Ikram Ali Sufi I M S 1st Class Military Assistant Surgeon, F & Outlet Civil Surgeon Bhandara, is transferred in the same capacity to Narsinghpur

DR RICHARD P STRONG formerly of Manila and recently of the Harvard Medical School, has taken up an appointment as Director of the Hospitals and Laboratories of the United Fruit Company in Central America

HIS EXCELLENCY THE GOVERNOR OF BOMBAY IN COUNCIL is pleased to appoint Dr H C Venis, on return from leave to do duty as Health Officer of the Port of Karachi, pending, &c, further orders

ASSISTANT SURGEON T L MAIKANI, M B, B S, held charge of the Civil Surgeony, Laikana from the 24th October to 16th November 1914

THE whole service will give their sympathy to Surgeon General Sir Paidey Lukis on account of the sad death, in action in Flanders of his son Theodore Stewart Lukis, who joined 13th London Regt as Lieutenant on 1st September 1914 after a very brilliant medical career in London (M D, gold medal, &c)

WITH effect from the 1st December 1914 Lieutenant Colonel W Young, I M S Civil Surgeon 2nd class to be Civil Surgeon 1st class substantive *pro tempore vice* Lieutenant Colonel J M Crawford, I M S reverted to military duty

MAJOR R A LLOYD M D I M S, is gazetted to be temporary Lieutenant Colonel whilst in charge of No 12 Indian General Hospital at Brockenhuist Dated 25th November 1914

MAJOR LLOYD is shown in the Army List as M O of the 21st Punjab his first commission dates from 26th July 1902

SECOND CLASS ASSISTANT SURGEON CHARLES WILTSHIRE MAINE is discharged from the service with effect from the 28th February 1915 under the provisions of paragraph 1 Appendix II Army Regulations, India Volume VI

THE following promotions are made, subject to His Majesty's approval —

Majors to be Lieutenant Colonels I M S

Algernon Francis Stevens,
Clement Henry Bensley,
Francis Hammond Watling, M B,
Frank Wall,
Charles Montague Mathew,
John Stephenson M B F R C S,
Frank Needham Windsor, M B,
Ernest Edwin Waters, M D,
Asher Leventon F R C S I,
Arthur Frederick William King, F R C S E,
Robert Frazer Standage,
Andrew Armstrong Gibbs,
Edmund Moritz Illington F P O S E,
Charles George Webster, F R C S E,

Dated 29th Jan
1915

Of these officers the first five belong to the batch with first commissions, dated 29th January 1895, of which batch 4 have already received accelerated promotion to Lieutenant Colonels with effect from 29th July 1914

Of the rest, these nine officers have 1st commissions, dated 29th July 1895 but all of them had received accelerated promotion to be Majors on 29th January 1907. Of the batch of 29th January 1895 one officer's name is omitted—he is at

home on long leave and of the batch of 29th July 1895, there still remain four officers to be promoted but these are men who did not receive accelerated promotion to their majorities

HIS MAJESTY THE KING EMPEROR the Sovereign Head and Patron, has been graciously pleased to sanction the following appointments to the Order of St John of Jerusalem, in England —

As Knight of Grace — Lieutenant Colonel William Ernest Jennings, M D I M S (formerly Honorary Serving Brother), As Honorary Associates — Colonel Harold Hendley M D, I M S Brevet Colonel Bruce Gordon Seton I M S, the Rev Peter Cullen M D D P H

ON 5th March orders were issued to Lieutenant Colonel A H Nott, I M S Civil Surgeon of Howrah, Major W Y Coppinger I M S acting at Presidency General Hospital, and Major Hugh Dutton to revert to Military duty

MAJOR SINHA, I M S, who retired from the Service some 10 or 11 years ago and has been settled in England, has been asked, though over the age of 55 to return to India for employment as a Civil Surgeon, and has returned

LIEUTENANT COLONEL C FEARNSIDE I M S (retired) has also returned to India for duty and has been posted as Civil Surgeon, Coimbatore

THE following notification by the Government of India Department of Education (Sanitary) is published —

No 189, dated the 15th February 1915

Dr Shamroo Narayan Gore is appointed to the Bacteriological Department on probation for one year

THE services of the undermentioned officers have been temporarily placed at the disposal of the Government of India with effect from the dates specified against their names —

Lieutenant Colonel J B Smith, M B M Ch (R U I) D P H D T M & H (Cantab) I M S 15th December 1914

Captain T C Lucas M B, B C (Cantab) R A M C, 5th January 1915

MAJOR G A JOLLY I M S, on return from leave resumed charge as officiating Civil Surgeon, Gonda

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

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Original Articles.

LITHOLAPAXY IN INDIA

BY D F KEEGAN,

BRIGADE SURGEON LIEUT COL, I M S (ret'd), F R C S

I SPENT the last two cold seasons at Indore, where in the early eighties I took part in the battle of Litholapaxy *versus* Lithotomy. Many of my surgical comrades of those days have passed away, while others are still enjoying their well-earned pensions. Perhaps it may be well to remind the rising generation of Indian Medical Officers that the fight was long and strenuous, and that, in the end, we failed to win along the whole line, as will appear later on. The surgical treatment of vesical calculus must always have an absorbing interest for men of our service whose lot is cast in what I may designate as the calculus districts of India. What is the best method of treating stone in the bladder in India is a question of great importance. How important it is, is proved by the fact that since Bigelow's great innovation in 1878, as many as two hundred thousand patients suffering from vesical calculus have been treated in India, for in this country we deal with more than five thousand annually. More than half of these patients were boys. Stone in the bladder will remain an important surgical disease in certain districts of India so long as the factors which produce it continue to operate. All who have given much attention to the causation of vesical calculus are, I think, agreed that there are four or five factors which bring it about, *viz.*, diet, geological conditions, which, of course, include the supply of drinking water, climate, clothing, and perhaps a certain hereditary tendency, for we know that some few children are born with calculi in the bladder. The causation of vesical calculus is, however, too wide and complex a problem to be disposed of in a short paper, and I would merely remark that there are certain districts in England at the present day from which stone in the bladder is rapidly disappearing. Nowadays very few cases of stone in the bladder are admitted into the Norwich Hospital, where Cross and Cadge treated so many in the latter half of the past century. The climate and the geological features of Norwich have not changed since then, but perhaps the beer that is consumed at the present day in Norfolk is not as potent in producing lithic acid as that brewed in the past century. I recollect so well a patient telling me many years ago at Indore that he attributed the beginnings of his stone to the following circumstances. He was an inhabitant of Rajputana, and was invited, one hot weather to a marriage

feast some very considerable distance from his home. He marched for four or five days in very hot weather to the wedding, and was regaled by his host for four or five days with large quantities of meat and native liquor during the festivities. He had hitherto led a very abstemious life, and had seldom indulged in the luxury of meat, and was a "total abstainer." He marched back to his home and, before reaching it was seized with great pain in the kidney region. I have no doubt in my own mind that this man was quite correct in attributing the formation of his stone to his indulging, not wisely but too well, at the wedding. But I must not pursue this subject any further.

The Triennial Reports of the working of the Charitable Dispensaries of the Punjab and the United Provinces for the years 1911, 1912, and 1913 are both before me and afford ample data for the remarks I wish to make on the present position of the treatment of vesical calculus in India. I will first take the report for the Punjab. In it we read that lithotomy was done in 209 cases in 1913 as compared with 167 in 1912 and 162 in 1911, and that the mortality was 10.52, 13.17, and 11.72 per cent, respectively, giving an average of 11.8 for the triennium. And it is added "it is satisfactory to note that though lithotomy was performed more frequently in the last year, the death-rate shows a decline." In my opinion this is very poor comfort, when one knows perfectly well that although the death-rate of lithotomy in the year 1913 decreased as compared with that of 1912 and 1911, the number of deaths from stone in the bladder increased by adopting lithotomy more frequently in 1913 than in 1912 and 1911. Litholapaxy was done in 2,044 cases in 1913 against 2,049 in 1912 and 1,841 in 1911, and the percentage of mortality was 2.39 in 1913, 2.68 in 1912 and 2.82 in 1911, or an average of 2.63 as compared with 2.97 in the triennium ending the year 1910. From these figures it is evident that a gradual improvement is taking place in performing litholapaxy in the Punjab. Now although these figures are correct as regards the rate of mortality following both lithotomy and litholapaxy, an error, and a rather important one, has crept into the calculation regarding the absolute success of these two operations. And the error has arisen through ignoring the number of patients submitted to both the cutting and the crushing operation who appear in statement G, at the back of the Report as "discharged otherwise" and "relieved." We all know, only too well, the condition of patients "discharged otherwise" from hospital after an operation for stone in the bladder. Borne homewards by their friends or relatives on a charpoy, or carried in some country conveyance, the patient is in nine cases out of ten *in articulo mortis*. The "relieved"

stone patients are perhaps not in such a desperate plight as the "otherwise discharged" group they linger for a time at home and then pass away. And therefore it is only fair that the results of all operations undertaken for the cure of vesical calculus should be tabulated under two heads, *viz*, successful and unsuccessful. "Paint me as I am" is a good motto. Adopting this method of appraising the result of stone operations in the Punjab, I find the following figures appearing. Percentage of failures or unsuccesses in suprapubic lithotomy was 24, in lateral lithotomy it was 16.74, in lithotomy it was 10, and in litholapaxy it was 3.91. The cutting and crushing operations were, as near as possible, in the proportion of one to eight. There were but twenty lithotomies performed during the year with two deaths. Judging by results I think these lithotomies were lithotomies of "many sittings" as carried out in the days which preceded the year 1878. I think the time has now arrived when the operation designated lithotomy might be safely eliminated from the nomenclature of stone operations, and litholapaxy used in its stead. Fifty operations grouped under the confused heading, cystotomy suprapubic, perineal or vaginal, were followed by seven deaths, one "discharged otherwise" and four "relieved." I have counted these fifty operations as suprapubics, and the percentage of unsuccess in performing them was, as already stated, 10. The tabulation of stone operations in statement G is most confusing and sadly requires revision. But the broad fact emerges that in 2,044 litholapaxies the percentage of failures did not exceed 3.91. I consider this a splendid result when one bears in mind that about 2 per cent of the patients submitted to litholapaxy were probably labouring under advanced kidney disease, that many of the calculi crushed were of large size, and that among the surgeons who performed the operations some were beginners and had not as yet gained a practical familiarity in using the lithotrite in difficult and complicated cases. No matter how skilful the operator may be, he must be prepared for a high rate of mortality when he is obliged to deal with a case of stone in the bladder, complicated with advanced kidney disease.

Let me now turn to the Report of the United Provinces. In the body of the Report no information is given regarding the results of operations for stone in the bladder, but, on referring to statement G, I find there were 289 cutting and 730 crushing operations. Treating "discharged otherwise" and "relieved" cases as unsuccessful, I find the following results. Percentage of unsuccess of suprapubic lithotomy was 18.08, of lateral perineal lithotomy 12.5, of litholapaxy 5.01. Fifteen cases of median lithotomy were all successful. We know that

median lithotomy is usually a very safe operation for small stones in boys but it is just in such cases that litholapaxy is so eminently successful if a skilled lithotomist is available to deal with them. No trustworthy deductions, however, can be drawn from so small a number as fifteen. The proportion of cutting to crushing operations was as one to two and a half and therefore litholapaxy must be considered a failure in the United Provinces as compared with the brilliant results achieved in the Punjab. There were 7 vaginal lithotomies performed in the United Provinces in 1913, all successful; but I cannot help thinking that litholapaxy would have dealt with these cases more expeditiously and satisfactorily than any cutting operation. I also note that the antiquated and rather barbarous method of dilating the female urethra was carried out eight times for the relief of stone in the bladder, and that one of these cases was discharged from hospital as "relieved." She was no doubt relieved of her stone, but if, as very likely, the dilation had caused incontinence of urine one becomes sceptical of the amount of real relief afforded.

And now to deal with the last series of operations for stone in the bladder which I had the good fortune to carry out at the Indore Hospital. I returned from furlough to Europe at the end of October 1891 and relinquished my appointment as Residency Surgeon at the end of March 1894. Between these dates 215 patients were admitted into hospital with stone in the bladder. In 208 of these cases litholapaxy was carried out. There were five deaths in 208 cases; the mortality was therefore 2.4 per cent, and there were no cases "discharged otherwise" or "relieved." Suffice it to say that three out of the five deaths were caused by advanced kidney disease. One old man, 85 years of age, died from the shock of the operation the day after his stone was crushed, and one boy died on the ninth day after operation and a large quantity of pus was found after death in both pleural cavities and in peritoneum. The bladder was found healthy. In this case the meatus urethral was slit up. In my paper in this *Gazette*, many years ago, when dealing with the Russian Surgeon Assendelft's experiences in the treatment of stone in the bladder I alluded to the fatal termination in this case. More than half of the 208 litholapaxies, *viz*, 118, were performed on boys varying in age from 2½ to 14 years. A few were girls, and the average age of the boys was 6½ years. In seven out of the 215 cases admitted into hospital, litholapaxy was impracticable owing to different complications into which it is not necessary to enter. Six of these cases were dealt with by lateral lithotomy, and in one case, a very complicated one I performed suprapubic lithotomy in two stages. The particulars of this case I related

many years ago in the *Lancet* There was no death amongst these six cases Reviewing my own experience, and the figures contained in the Punjab Report, we arrive at the conclusion that *litholapaxy is a far more successful surgical procedure in dealing with stone in the bladder than any form of cutting operation, be it suprapubic or perineal* We all know that litholapaxy is not feasible in all cases, but once the surgeon has acquired the requisite familiarity in using the lithotrite he will be able to deal with the great majority of cases of stone in the bladder which he meets with in India I take the following case almost at random, as evidence of the great superiority of litholapaxy over all its rivals

Ram Singh, aged 30, a Rajput by caste, was admitted into the Indore Hospital on the 9th December 1892, suffering from stone in the bladder for 14 years The same day I crushed his stone, an exceedingly hard one weighing 1,450 grains The nucleus consisted of oxalate and phosphate of lime and the body of the stone was hard uric acid I used a No 15 lithotrite and a No 18 evacuating cannula

December 10th—Has no pain over bladder region or along the course of the urethra, urine clear, slight sediment, passes urine in full stream

December 11th—Morning temp 98.2°, has no pain of any kind, passed urine seven times in last 24 hours, urine clear, walks about the ward, quite well.

Now compare this case, and there are hundreds of them occurring every year in the Punjab and in Hyderabad (Sind), with a suprapubic or a lateral lithotomy, and the great superiority of litholapaxy over any cutting operation is at once most striking In the face of evidence of this kind which I have over and over again placed before the readers of the *Indian Medical Gazette* in former years, *why is it that members of our service living in the calculus districts of India still persist in cutting boys and old men for stone in the bladder, when we know that a lithotomy, be it perineal or suprapubic, is followed by a much higher rate of mortality than a crushing operation entails* The answer to this question is that as a rule, young surgeons arriving in this country have never had an opportunity, during the whole of their studentship, of seeing a litholapaxy performed by an expert with the lithotrite, unless they have attended a special hospital for genito-urinary diseases But they may have seen many suprapubic lithotomies performed by the general run of hospital surgeons, and they continue to follow in India the practice of their teachers at home when appointed to a civil station in this country I know how very small is the number of surgeons in the whole of London at the present day who can perform a litholapaxy in a workmanlike manner Most hospital surgeons can do a perineal or a supra-

pubic lithotomy quite efficiently, but a man may be a most accomplished expert in the whole gamut of abdominal operations, and still be quite unequal to the task of crushing a stone in the bladder, as it should be done We have seen that even in the Punjab there is a tendency to increase the number of cutting operations for stone in the bladder from year to year, and that in the United Provinces the number of litholapaxies is only a little more than double of the lithotomies *What is the remedy?* It is a simple one, and at the Medical Congress held at Bombay some seven years ago I pointed it out All surgeons appointed to the medical charge of a civil station in a district of India where stone in the bladder is a common complaint *should be sent for a short time to learn the art of crushing vesical calculi under the direct superintendence and guidance of an expert, if he has not already gained such experience* There are many hospitals in India where this experience could be acquired in a very short time, and there are plenty of competent teachers to impart the instruction Imagine the disastrous consequences of appointing a surgeon imbued with a decided penchant for suprapubic lithotomy, the result of faulty teaching and example during his studentship, to a civil station like Mooltan in the Punjab or Hyderabad (Sind), where Forbes-Keith, Henderson, and Stevenson crushed many hundreds of calculi annually The consequences would be inevitable—a large increase in the death-rate following stone operations, and a rapid decrease in the number of admissions into hospital for the cure of this disease

CASUALTIES IN THE PERSIAN GULF

BY C A GILL, M.B., D.P.H.,

MAJOR, I.M.S.

I READ with much interest the article on the above subject by Captains Barber and Doyle in the March number of the *Gazette* I was particularly interested in their remarks regarding the value of the first field dressing and the occurrence of tetanus in Arab and Turkish wounded prisoners

It may perhaps not be without interest to relate my small personal experience in regard to the above in another part of the Persian Gulf—*viz*, Muscat In a fight which occurred on the night of January 10th and on the following day between a small force of Indian troops at Muscat and some 3,000 Arabs, the latter's casualties were estimated at about 500, as against 25 on our side

In the case of our wounded the first field dressing was promptly applied before the men were sent to the rear on stretchers or in doolies Except in the case of one man, who was shot

through the head and who died shortly after he arrived in hospital, all the wounded eventually recovered, including some serious cases with compound comminuted fractures of the femur and tibia (The cases were treated by Captain W. L. Watson, *M.S.*, 102nd Grenadiers.)

In the case of the Arabs many of them dead and almost all their wounded were removed by them on donkeys and camels. Some, it is said, were carried suspended from a pole by their hands and feet with their heads downwards. Nothing is known regarding the ultimate fate of these men except that the mortality amongst them is said to have been extremely high, and in some cases death is believed to have been due to tetanus.

On the day of the fight and on the following day five seriously wounded and a few moribund Arabs were picked up. These were provisionally attended to, but owing to lack of accommodation they were sent to the Civil Hospital Muscat, for treatment. Two of these cases on the 7th and 9th day respectively unfortunately developed tetanus to which they succumbed, whilst another died from septicaemia. The most (apparently) serious case of all to whom I gave an injection of morphia and applied first field dressings within a few minutes of the infliction of his injuries had the following injuries: (1) a bullet had passed through the chest, (2) a wound of entry was present near the right hip joint with a large wound of exit in the left iliac region of the abdomen, (3) the right elbow joint was severely lacerated, the heads of the ulna or radius being pulverised.

This man, contrary to expectation made a complete recovery, and owing to the formation of a false joint he now has a moderately useful right arm with a fair range of movement at the elbow joint.

It is of course dangerous to generalise from such meagre facts, but nevertheless one cannot help being struck with the difference in the fate of those men to whom first field dressings were promptly applied, and in that of those whose wounds remained exposed to contamination for a considerable period. As in all cases the wounds were treated exactly alike, *viz.*, no attempt was made to sterilise the wounds except at the point of entry and exit of the bullets, the circumstances appear to suggest that bullet wounds are more frequently infected during the first few hours after the receipt of the injury than by the "carrying in" of infected material at the time of the injury.

It was a matter of considerable surprise and disappointment that two cases should have developed *tetanus*, for a dry sandy soil, only broken by ranges of barren mountains uncultivated and almost uninhabited, is scarcely suggested of a *tetanus* country. One can only

surmise that either the Arabs themselves are extensive "carriers," or that their clothing becomes contaminated with tetanus spores derived from the donkeys, camels, or goats which are practically the only animals with which they come in contact.

Be this as it may it seems improbable that in this inhospitable country the soil can be a common source of infection. Tetanus, therefore, seems a danger to apprehend in the Persian Gulf and anti-tetanic serum has therefore been obtained for use as a prophylactic in all cases of extensive injuries more especially if their cleansing has been at all delayed. Finally it may be of interest to mention that the two Arabs who recovered, and who fully expected to be tortured and killed according to local custom, have not only been released by H. H. the Sultan of Muscat, but he has provided them with clothes, money, and even weapons before sending them back to their own country. This action—which is as wise as it is generous—has caused an infinity of surprise amongst the Arab population, who are at a loss to understand the reason for such extraordinary conduct. The photograph represents the Arab whose injuries are detailed above, and who has this day received his *khullat* and returned to his own country, let us hope in a chastened spirit and with a mind broadened by his, to him, unique experience.

GUNSHOT WOUND PECULIAR SYMPTOMS OF SHOCK

By G. FOWLER,

MAJOR, *M.S.*

THE following case, of gunshot injuries, is interesting as the symptoms of shock that supervened were quite unusual, more especially as the injuries were of a very minor nature.

G. S., a man of good physique, was hit by two bullets from a service rifle fired by a man that had "run amok" on the afternoon of the 18th February. The first bullet struck the left thigh behind and passed through the hamstrings, the second bullet struck the back of the right thigh and went through the skin and subcutaneous tissues. In the first case the wounds of entrance and exit were exactly similar and were very small, while in the second case the wound of entrance was small, but the wound of exit was oval, bevelled, and about ten times as large as the entrance wound. Both wounds were simple and were treated with Tinct. Iodine and bandaged. The general condition of the patient was as follows when I saw him 15 minutes after the injuries were received. He was very excited and talked a good deal about how he was made a target of. His skin was warm and the temperature normal. The pulse was very slow, 40 per

CASUALTIES IN THE PERSIAN GULF

BY MAJOR C. A. GILL, M.B., D.P.H., I.M.S.



An Arab recovered from his wounds and set free

minute, irregular, every 4th or 5th beat being missed, but of fairly full volume. There was complete retention of urine and faeces. The urine had to be drawn off morning and evening for three days and the bowels in spite of purgatives did not act till the third day. On the fourth morning he was able to pass his urine normally. The amount of urine drawn off was not great during the three days. Patient had never suffered from stricture of the urethra.

These symptoms, though not the classical ones, indicate that the patient suffered from shock even though the injuries were of a trivial nature. As I have seen no such symptoms described in the cases reported from the front I bring this case to notice. Recovery has been uneventful and the patient is now able to walk about.

PREVALENCE OF INTESTINAL PARASITES IN THE UNITED PROVINCES *

By J. G. MUKERJI, L.M.S.,

and

BANARSI DASS, M.B., B.S.,

*Demonstrators of Pathology, King George's Medical College,
Lucknow*

THE stools of six hundred patients were examined in the King George's Hospital from 3rd October 1913 to 14th December 1914. Major H. J. Walton at first wished that the stool of every patient admitted to the hospital should be submitted to a microscopic examination. But it was soon found to be impracticable to get through all the specimens. It was arranged that all motions with the least suspicion of containing parasites or their ova should receive attention first. In addition to these a good many stools were put up indiscriminately as time permitted. Many of the stools were sent up for re-examination on several occasions.

We believe the results, such as they are, may be considered of some value specially in view of the fact that, as far as we are aware, no systematic examination of stools has so far been undertaken in the United Provinces. The figures may be taken to give an idea of the incidence of intestinal parasites in the average hospital-going class of people in this province.

Roughly speaking 40 per cent of the people, whose stools were examined, harboured intestinal parasites. Of these nearly 27 per cent were intestinal worms and about 13 per cent were protozoa.

Ankylostoma duodenale—The eggs of this worm alone were discovered in 70 specimens, and in 26 it was found along with other parasites. It appears to be the commonest intestinal parasite in this series of cases. Very few of the hosts

seemed to suffer much inconvenience from its presence, even when their stools showed large numbers of ova. Besides the ordinary segmented ovum usually seen in the faeces, one of us (J. G. M.) came across a newly developed embryo wriggling inside the egg shell on two occasions. On inquiry it was found that the bed-pan containing the specimen was left exposed to the morning sun for an hour or more. This exposure to warmth probably accounts for the quick development.

In six cases in which numerous ova were found a culture was attempted. Larvæ developed only on two occasions. The method adopted was this. A little finely powdered earth was placed in a petri dish, which was then sterilised in the hot air steriliser. Another dish was prepared in the same way but with animal charcoal in place of earth. The earth was well mixed with distilled water and a little of the faecal matter was put in the centre. The whole was then stirred up with a rod so as to give the consistency of thin mud. The dish was covered up and laid aside at room temperature. The charcoal dish was dealt with in the same way. On the third or fourth day according to the temperature typical rhabditiform larvæ could be seen under the low power.

Ascaris lumbricoides—In nine cases ascaris ova were seen in the company of other parasites, and they were found alone in 20 specimens. In October 1913 some of the faeces containing numerous ova was mixed up with distilled water and put away in the warm incubator. Another specimen was kept in 0.2 per cent hydrochloric acid, and a week later a little of this was transferred to normal saline. All the three preparations were kept at 37°C for six months. This was done to give the ova a chance of developing, but as nothing happened they were kept in the incubator for another six months. At the end of one year no change was noticed, so the tubes were left at the room temperature for six months more. After 18 months the ova were found to be practically unaltered in appearance.

Trichocephalus trichurus—Ova were met with singly in 8 specimens, they were seen with other parasites in four cases.

Tape-worm ova, which were almost certainly *Tænia saginata*, were found alone in nine cases, and in the company of other parasites in the remaining 9.

Oxyuris vermicularis—Ova were discovered only twice, once along with ankylostome ova and on the other occasion with tapeworm eggs. In both stools a few adult worms were found. This finding probably does not represent correctly the prevalence of the *Oxyuris vermicularis* as we are aware of a considerable number of cases of infection among the general population of Lucknow.

* Forwarded by Major Megaw, I.M.S.

Strongyloides intestinalis was found only in one case. The patient was a Moham-medan male, aged 50 years. He came in with cough, and harboured ankylostoma duo-denale. In January 1914 one of us (B D) was looking at his stool when an actively moving creature suddenly appeared in the field of the microscope. The movement was of a wriggling character. Sir Leonard Rogers, I M S, who was in Lucknow at the time, was requested to see the specimen. He at once diagnosed it to be a strongylus. This patient's stool was watched from day to day, but no more strongyloides could be seen for six days. On the seventh day the worm again put in an appearance only to dis-appear once more. Three days after this we lost sight of the man.

Entamoeba and Cysts—Entamoebæ were found alone in 7 cases, with numerous trichomonas in 4, with ova of intestinal worms in 6, and in two cases there were also cysts containing 8 nuclei.

With regard to the classification of the amoebæ found we are not able to satisfy our-selves that they belonged to more than one species. They were large in size, actively motile, and in many cases contained red blood corpuscles. There was a marked distinction between the ecto-and endo-plasm, and so they may be regarded as having the appearance of "Entamoeba dysen-terica." They were found only in cases having the clinical manifestations of dysentery, and so they may fairly be assumed to be amoebæ of dysentery. All the cases yielded rapidly to eme-tine treatment and the amoebæ disappeared from the stools.

Cysts were found in 22 cases in all—only two of these were actually suffering from dysentery. The average diameter of the cysts was 30 mic-

rons, and the number of nuclei was never less than eight, this being the commonest number, but sometimes more than eight were observed. In two specimens the cysts were very plentiful. On both occasions some of the faecal matter was mixed up with normal saline and injected high up into a kitten's rectum by means of a soft catheter and syringe, in the hope of seeing adult entamoebæ develop from the cysts. The kitten's motions were carefully watched for several weeks, but the cysts disappeared in a day or two and no amoebæ appeared. No feeding experiments have yet been done.

Balantidium coli was seen singly in one case only, in another it was found with trichomonas, and in the remaining two there were ova of ankylostoma as well. All the four patients were suffering from chronic diarrhoea.

Trichomonas intestinalis was always found in liquid motions and usually in large numbers. In 22 cases it was the only parasite seen. In some cases smears were made and fixed by the wet method. We got quite satisfactory results by staining these smears with non hæmatoxylin. The dry method was not much of a success for this organism.

Multiple infections—The highest number of intestinal parasites in a single individual's faeces was five, viz., ova of *Asc. lumbricoides*, *Ank. duodenale*, *Tænia saginata*, *Balantidium coli* and Entamoebæ. There were two cases of quadruple infection, five of triple, and thirty-one of double infection.

Our best thanks are due to Major H. J. Walton, I M S, for his kind criticism and guidance especially in the identification of the cysts of amoebæ, as well as to Major J. W. D. Megaw, I M S, for his valuable advice and help.

Prevalence of Intestinal Parasites in the United Provinces

| Number of patients | OVA OF INTESTINAL WORMS | | | | | | Strongyloides intes-tinalis | PROTOZOA | | | | | Total infection | No infection |
|--------------------|-------------------------|-------------------------|---------------------------|----------|-----------------------|-------|-----------------------------|-----------|---------------------|------------------|--------------------------|-------|-----------------|--------------|
| | Ankylostom a duodenale | Ascari s lumbr i coides | Trichocephalus trichu-ris | Tapeworm | Oxyuris vermi-cularis | Total | | Entamoeba | Cysts of Ent amoeba | Balantidium Coli | Trichomonas intestinalis | Total | | |
| 600 | 96 | 29 | 12 | 18 | 2 | 157 | 1 | 19 | 22 | 4 | 32 | 77 | 235 | 365 |
| 100 | 16 | 4.8 | 2 | 3 | 0.3 | 26.1 | 0.16 | 3.16 | 3.6 | 0.6 | 5.3 | 12.7 | 39.2 | 60.8 |

BETA NAPHTHOL POISONING OCCURRING DURING THE TREATMENT OF ANKYLOSTOMIASIS

By W B ORME,

Principal Medical Officer, British North Borneo

AN obvious case of the above condition has recently been enquired into at Sandakan, British North Borneo, and being only one of a series coming under the writer's notice the time is apparently ripe for a word of warning.

Looking back seventeen years there was but one drug on which reliance was placed, *viz*, thymol, introduced by Bozzolo in the early eighties.

In 1887 Dr F M Sandwith, of Cano, began treating his cases successfully with this drug, having previously had nothing but disappointment from the male-fein and santonin previously in vogue.

In 1898 the routine method of eradication in Egyptian hospitals was to place the patient on milk diet for a whole day, on the evening of which he was dosed with 1 gramme of thymol, early the next morning the thymol dose was repeated and followed at 8 A M by 30 grammes of Epsom salts.

Ordinary precautions were taken inasmuch as all patients were enjoined to remain absolutely prone and the solvents, alcohol, ether, chloroform, glycerine, turpentine and oils were naturally avoided.

At the period referred to it was not deemed wise to submit one's patients to such a depressing treatment more often than once a week. From time to time the poisonous effects of the drug were seen in giddiness and faintness accompanied by slow pulse and respiration but fatal cases were few if any.

Possibly, however, it was the occurrence of some fatal case which induced Phillips to introduce his eucalyptus mixture, which for a time entirely superseded thymol.

Beta naphthol was introduced at a much later date, Nicol probably being one of the first to use it on a large scale in Natal (*Transvaal Medical Journal*, June, 1910)*. Beta naphthol was particularly welcomed as by reputation it was safe, and in 1911 it was common to see it exhibited in the Federated Malay States in three doses of twenty grains each preceded and followed by Epsom salts.

In these 20 grain doses thousands of cases were treated with, in the writer's memory but one fatal case occurring.

Of late, however it has become the fashion to use it in enhanced doses three portions of 30

grains each being quite usual, and even larger being exhibited by some.

These large doses one is inclined to deprecate as routine administered by dressers in native hospitals, the attention given by the qualified man is bound in such to be, in the majority of cases supervisory rather than personal, and as the fatal case about to be recorded was obviously one in which the medical officer would have reduced the dose had he been able to give the patient a careful personal examination, one can only express the opinion that big doses are only justifiable when given under the immediate care of a qualified man who can afford time to see the patient two or three times daily.

Two other fatal cases have come under notice, though unfortunately in these cases notes were not recorded, both resembled the present case very closely.

Luh Tian, a Chinese male, 28 years of age, was sentenced to three years' imprisonment at Sandakan during August, 1913.

On August 25th, 1914, he was admitted to the gaol hospital for a trivial abscess on the knee, and being somewhat anæmic his fæces were examined for ova, the result being recorded as follows—*Ankylostomum ova*, *Clonorchis ova*, *Trichuris Trichiura ova*. The same evening 5 grains of Calomel was given.

On August 28th half an ounce of Epsom salts was administered and followed at 7 A M, 9 A M, and 11 A M the following day by 30 grains of beta naphthol on each occasion. Another dose of Epsom salts was given at 1 P M, and the resulting stool found to contain seven *Ankylostoma*.

The next day, August 30th, the treatment was ordered to be repeated, Epsom salts being given the same evening. On the dresser visiting the hospital at 7 A M on the 31st, the patient was given his first dose of the beta naphthol mixture, shortly after he commenced vomiting so that the second and third doses were not administered.

One may here remark that when the gaol dresser has finished his morning duty he leaves, as later he is due to take up the non-working hours at the Sandakan Civil Hospital, *viz*, 11 A M to 2 P M and 4 P M to 7 P M. This being the case, the second and third doses are left in charge of an attendant who, in the case in point, did quite correctly in not giving the second and third doses, but unhappily did not mention this fact to the medical officer nor call his attention in any way to the patient.

At 6 P M another dresser was at the gaol hospital and recorded the patient's temperature as 102.8°F. On the morning of September 1st the fever had fallen to 99°F, but vomiting continued, the urine became extremely dark in colour and slight jaundice showed itself. During the morning he was seen by the medical officer.

* [It was largely used, by Bentley among others in Assam, before this date.—ED.]

and found in a collapsed condition, so much so that 1/60 grain of stychmine was ordered at 11 A.M., 4 P.M. and 9 P.M. The temperature in the evening, however, again rose to 101°F, and in the early hours on September 2nd the patient died.

On the bed-head ticket being examined it was found that, as usual, before such treatment the urine had been tested, the record being as follows —

Sp gr 1010
Acid
Cloud of albumen

It is felt that the presence of albumen is of paramount significance as it was also found in the other fatal cases mentioned above.

A *post-mortem* examination was held, the chief points of interest being the liver and kidneys. The former weighed 3 lbs 5 ozs, was deep yellow in colour, and contained numerous *Clonorchis sinensis*. The right and left kidneys weighed respectively 4 and 5 ozs, and on section showed a rather narrow cortex though the capsule stripped fairly readily without tearing the tissue beneath. The section had a somewhat fatty appearance, but the most characteristic feature was the colour, which had much of the aspect of the liver itself though not so deeply stained. There was no congestion, the cut surface being quite dry.

Some urine which was removed *post-mortem* was very dark, apparently partly due to bile and partly to the beta naphthol. Albumen was present in large amount.

Microscopic examination showed a quantity of debris and a few scattered red blood cells. No spectroscopic examination was made.

Looking back on these cases there can be no doubt that in those individuals suffering from diseases of the kidneys beta naphthol should be used with the utmost caution, if at all, certainly not in the heroic doses at present in fashion.

Probably it would also be wise to go back to the old Egyptian rule of leaving an interval of a full week between any two treatments.

A point of interest in the eradication of Ankylostomiasis turns upon the suggestion of Dr J. E. A. Ferguson (Medical Officer, Peter's Hall Medical District, British Guiana), in his report published by the Advisory Committee for the Tropical Disease Research Fund. Dr Ferguson treats Ankylostomiasis by administering a cachet containing 10 grains of thymol every night for a period of many weeks.

In discussing the probable advantage of the above method of treatment, over that in general use with several medical men in British North Borneo, it appeared to be generally held that such a course of thymol would in a large percentage of cases damage the kidneys. Whereas Dr Ferguson says "This long continued course of thymol produced no ill-effect whatever and cured the disease completely."

It would be highly interesting if any medical men having experience of this treatment would publish their results in the *Gazette*, paying special attention to the points raised.

One more observation, which may be interesting to those in charge of hospitals in the tropics, is that, in the writer's experience, whereas in necator infection one treatment is usually sufficient to dislodge all the worms, in infection with *A. duodenale* three are generally necessary. Can it be that the more formidable mouth-parts of the latter are responsible for this difference?

A SUSPECTED CASE OF KEDANI RIVER FEVER IN THE FEDERATED MALAY STATES

BY DR R. DOWDEN,

Malay States Medical Staff

DR SANDWITH in his article on Kedani River Fever, *Allbutt's System of Medicine*, 1910 edition, states that the disease has only been recognised in Japan.

Dr Wilhelm Schuffner of Deli, Sumatra, has published a paper since then on the occurrence of this disease, or a variety of it in Sumatra, and has recorded one hundred and fifty cases.

Dr Asburn and Craig have also recorded its presence in the Philippines.

The case given below is so similar in many particulars with those recorded by Dr Schuffner that one may be permitted to suppose that it is the same disease, and other cases may be recognised in these States.

It may be well to point out wherein the clinical findings in this case coincide with those in Sumatra.

1. In Japan the transmitting agent is said to be a larval form of some *Thrombidium*, a red mite, and in Deli ticks and a very small form of an unknown larva of some *Thrombidium* have been suspected, as well as a nymph of a species of *Hyalomma*. The patient having been bitten by the carrying agent he sustains, according to Dr Schuffner, a primary lesion which is described as being —

"A small papule 2-4 mms in diameter. There is a red areola round this. This bursts and leaves a dark area of necrotic skin. Five to eight days later a slough separates, leaving an ulcer which has steep edges the floor discharging muco-purulent matter."

* [According to Major Clayton Lane, I.M.S., the standard treatment with B. Naphthol is thirty grains in 3 doses of 10 grains each, not to be repeated within the week and not to be given when there is albuminuria. —Ed.]

The patient here had numerous dark patches on the skin of his ankles and his left wrist. He thought that these were due to mosquito bites.

The marks were very much darker and more pronounced than those left by mosquito bites, and there appeared to have been a considerable amount of superficial necrosis where these bites had been inflicted.

His own description of these lesions was — 'After the bites pimples formed. Each had a small yellow head. The upper surfaces of the pimples came off, and sores varying in size from a pin's head to a sixpence were formed. Pus came away from these sores which healed in time after treatment.'

2 Dr. Shuffner says "The adjacent glands are enlarged to a varying degree while the remote glands are little affected. In this case the glands of both groins and those of the left axilla were enlarged, some were as big as a large bean. These were all freely moveable under the skin, as was the case in the Deli patients."

The remote glands were unaffected.

3 The rash

In Sumatra "the rash appeared on the second or third day. It consisted of rosella raised spots varying in size from a hemp seed to a penny—very much like a secondary syphilide. They are found chiefly on the body and last eight to ten days. Eventually they change to a brown colour and disappear."

There may be only a few reddish spots, or the rash may be as marked as that of measles and very like it."

In the case dealt with here there were two rashes. A primary rash, very profuse on the trunk and originally bright red in colour. Some spots appeared on the arms and face, and in the latter situation became hæmorrhagic. It was first noticed by the patient on the eighth day of the disease.

On the twentieth day a transient secondary rash was observed, this was almost exactly like a secondary syphilitic rash, and it lasted forty-eight hours when it suddenly faded.

The primary rash was fading to a brown colour when the patient was admitted to hospital.

4 Nervous symptoms

Most of the Deli cases complained of headache while more severe nervous symptoms, similar to those seen in enteric fever, appeared later.

This was also true in this case, but in addition the patient complained of severe neuralgic pains radiating from the nerves in neighbourhood of the enlarged glands. The pain radiating from the brachial plexus being specially severe.

5 Dr. Schuffner lays stress on pneumonia and bronchitis as being serious complications and this patient suffered from both.

When first admitted areas of dulness with some alteration in the breath sounds were noticed in the third and fourth intercostal space on the left

side and the base of the left lung while other active signs of pneumonia were wanting.

However pneumonia developed later on in these situations.

6 *Blood Counts*—In the Deli cases towards the end of the disease an extreme diminution of polymorphonuclear white cells, at times falling as low as eight per cent, was found, while lymphocytes may increase up to eighty six per cent.

Dr. Schuffner points out that, in cases complicated by broncho-pneumonia, there is an increase in polymorphonuclears.

The blood counts in this case did not vary greatly from the normal.

It was complicated not only by the presence of broncho-pneumonia but also by an abscess which formed in the left buttock at the site of an injection of quinine given before admission to hospital.

It will be seen there was a diminution of polymorphonuclears in the later counts.

7 *State of the Bowels*—Constipation was the rule in Sumatra, and this case was very constipated throughout.

8 *Urine*—There may or may not be albumen present in the urine. It was absent in this case, the urine was scanty and highly coloured.

9 *Rheumatic Pains*—In Deli rheumatoid pains in the joints were common after the temperature had fallen.

Pains along the left arm and leg and right thigh were complained of, and along the back of the left leg, but in this situation were due to the patient having been given quinine injections over the great sciatic nerve before he came to hospital.

CLINICAL NOTES OF THE CASE

Mr. E. R. L., a European, aged 20 years, occupation planter, was admitted to Batu Gajah Hospital on April 27th, 1914.

History—Has been resident in the Native States for one and a half years, and during that time has been employed as an assistant manager on various rubber plantations.

During this period has been quite well except for one bout of malaria which he had two months ago and which rapidly gave way to quinine.

Fourteen days prior to admission to hospital he noticed pain more or less severe in character in the left arm-pit, and extending to the skin of the upper-half of the left side of the chest. This pain also ran downwards along the inner side of the left arm to the left wrist. There was a constant ache and at times shooting pain. These pains have grown worse as the disease progressed. Wherever these pains are felt the skin is tender if touched.

For the past two weeks he has had a cough, but little or no sputum has been brought up. He complained also of "tightness" in the chest.

No temperature chart was kept but the temperature has been taken in the afternoons, and there has been a steady and progressive rise from 99° or 100° at the commencement of his illness up to the present time when the temperature has regularly been 101.8° to 102° or over.

Patient noticed a rash which he thinks came out after eight or nine days (*see* previous description)

This rash gave rise to no itching or discomfort

The bowels have been very constipated and aperients have been necessary

From the beginning of his illness patient has been given quinine by the mouth in solution. Three consecutive days before admission to hospital injections of quinine were given, one in the right buttock and two in the left

Patient states that the estate is a healthy one and there has been no unusual sickness there nor anywhere near, so far as he is aware

During his life he has never before had any serious illness and has never contracted any venereal disease

The patient, who has made a journey by train, looks ill and feels very fatigued

The skin of the left wrist and both ankles show numerous black scars which vary in size from a sixpence to a shilling (*see* previous description)

The lymphatic glands of the left arm-pit and both groins are enlarged and shotty. Freely movable and not painful. These were not noticed before either by the patient or his medical attendant

All over the trunk, back, and front there is a brown copper-coloured papulo-macular rash. The spots vary in size from the point of a pin to a hemp seed. There are a few on the arms, chiefly on the extensor aspects, and also on the face and forehead. In these situations some are hæmorrhagic

These spots appeared five or six days ago and were bright red at first and very profuse. They were said to be a septic rash. They are now fading

No spots are visible on the soft palate or the throat

The tongue is dry and covered with brown fur except at the tip and edges. The breath is offensive

The appetite is lost and has been so since the illness commenced

The spleen is just palpable under the ribs

The stomach is apparently normal

The liver is slightly enlarged

The intestines are apparently normal. There is no undue accumulation of gas

Meteorism has not been troublesome, but constipation has called for the use of aperients

Stool negative

The heart is strong and forcible. Impulse somewhat diffuse

Pulse is good, but rapid, 116 per minute

Temperature at 4 p.m. 101.6°

Lungs—There is a troublesome dry cough without expectoration. There is a patch of dulness in the third and fourth left interspace and over the left base with slightly altered breath sounds. No definite signs of pneumonia. In both lungs a few scattered riles

Respirations 26 per minute

From the left clavicle in front and the spine of the left scapula to the level of the fifth rib in front and behind the skin is painful on percussion and palpation (*see* previous description)

This pain has been constant but at times very severe and shooting out from the axilla. It has caused sleeplessness and is growing gradually worse. The skin over the thighs and legs is not painful

Urine—Sp. gr. 1010. No albumen or sugar. It is highly coloured and scanty

Blood—Not previously examined. Negative for malarial parasites

| | |
|-----------------------------------|--------|
| Count. —Polymorphonuclears | 76.00% |
| Small mononuclears | 12.70% |
| Large ditto and transitionals | 7.52% |
| Eosinophiles | 1.76% |

There are two indurated areas in the left buttock where injections of quinine had been given three days before admission to hospital. One of these areas is directly over the great sciatic nerve as it leaves the gluteal region

Blood for Widal forwarded to the Institute for Medical Research

Result negative for enteric

There has been severe frontal headache more or less constantly present

Sleep has been poor throughout

The general appearance is that of the third week of enteric fever

April 28th—All night and to-day there has been neuralgic pain along the front of the right thigh, which prevents the patient straightening out his leg

Pain over the front and back of the left side of the chest and down the left arm has been very aggravating and, in spite of trional, sleep has been poor

Cough has been troublesome, no sputum has been brought up during the night of April 28th, and up to the evening of April 29th this state of affairs continued

At 6 p.m. on the evening of April 29th crepitations were heard in the left base and the third and fourth left interspaces, and on the morning of the 30th blood-stained sputum, rather brighter than "rusty" sputum, was brought up. Examination was negative

The pneumonia ran a fairly regular course, uncomplicated by any pleurisy

The other symptoms continued headache and pain over the left side of the chest, but the pain in the right leg disappeared

Nervous symptoms, subsultus and slight delirium, were first noticed on the night of May 1st, and the patient made several attempts to get out of bed, requiring constant watching (These are symptoms noticed in the Delh cases)

On May 2nd a brownish to copper-coloured rash was noticed. By this time the first rash had almost completely faded except on the forehead where a few hæmorrhagic spots still persisted. This rash was exactly similar to a secondary syphilide

It lasted till May 4th when both rashes entirely disappeared. During this time the patient was greatly annoyed by prickly heat

On May 2nd the left buttock, where the quinine had been injected, was swollen and painful

This was opened on May 5th under local anaesthesia and could not be dealt with earlier owing to the patient's great objection to incision

A quantity of pus and disorganised blood was evacuated. Immediately after operation pain in the third and fourth left interspaces was complained of and crepitations were again heard

Blood-stained sputum, again almost arterial in colour, was brought up for forty-eight hours

On May 9th, the lung symptoms cleared up and the sputum ceased. The tongue cleared and appetite returned. The temperature, which had been falling from May 6th came to normal and did not again go above 98.4°, while the patient said that he was quite well

His recovery was quite uneventful, and he had remained perfectly well for two months the last time he was seen. During that time he had gained in weight

Treatment—This was entirely symptomatic. Phenacetin and caffeine seemed to relieve the neuralgic pains to some degree. Trional and kindred drugs were useless for inducing sleep which was obtained when bromide and chloral were resorted to

Several blood counts were made, but except that there was a slight polymorphonuclear increase with the advent of the pneumonia and abscess, they were not remarkable. During convalescence

there was a polymorphonuclear reduction and small mononuclear and eosinophiles increase to some degree

Two counts are given below

| | | |
|-------------------|--------|--------|
| Polymorphonuclear | 59.97% | 50.97% |
| Large mononuclear | 6.70% | 8.00% |
| Small " | 25.17% | 30.14% |
| Transitionals | 1.98% | 3.71% |
| Eosinophiles | 6.08% | 5.08% |

The eosinophile increase did not occur in the Delhi cases

I wish to express my indebtedness to Dr. Stanton of the Institute of Medical Research, Kuala Lumpur, for having drawn my attention to the similarity between this case and those described by Dr. Schuffner

Authorities—Clifford Allbutt's *System of Medicine*, Manson's *Tropical Disease*, Dr. Schuffner's paper on *Pseudo-Typhoid*, Dr. Craig and Asburn's paper on River Fever

CONCERNING INOCULATION AGAINST PLAGUE AND PNEUMONIA AND EXPERIMENTAL STUDY OF THERAPEUTIC METHODS

BY W. M. HAFFKINE,

Bacteriologist with the Government of India

(Concluded from page 180)

IN the interval between 1900, when he first began to use "vaccine therapy" for purposes of professional practice, and the date of the South African experiment, Sir Almroth E. Wright and his assistants at St. Mary's Hospital in London were, on one occasion, induced to *try and ascertain the efficacy of that procedure* in the way which had been commended, for such purposes, in my evidence to the Plague Commission of 1898-99, and in which I had been testing curative treatments in India. The experiment on that occasion was not completed by them, and although the preliminary statement which they made on the results was favourable to the therapy, they did not persevere with the study, and the further use of the "statistical," or, as it was termed, "*quasi-statistical*," method was discouraged by them*. In the Hospital of the Witwatersrand Native Labour Association, in South Africa, the experimental testing of "vaccine therapy," by that method, was, therefore, carried to a conclusion for the first time since the therapy had been used in practice. The disease—pneumonia—on which the trial was made, was that in which, of all the grave infections, "vaccine

therapy" promised to be the most successful*. The details of the actual experiment quoted above show that, of a total of 159 patients who were treated with "vaccine," 109, or 68.55 per cent recovered. 149 others, admitted to the hospital during the same time and alternately with the above patients, were, in accordance with the Poona procedure, treated by the current ordinary or "expectant" methods and of these 101, or 67.78 per cent recovered. The experiment having thus shown that the application of "vaccine therapy" made little difference, Sir Almroth E. Wright and the other workers at the hospital recorded that the treatment "was absolutely ineffective," and they recognised that the verdict, in respect of the treatment tried, was final.

On the subject as to whether information of that definite character was obtainable by the "*experiential method*," the following statements by the authors, partly quoted already, contain, no doubt, a reply (*The Lancet*, Dec. 14, 1902, p. 1637). "The experiential method will be inapplicable in the case where the substantive and control cases are distinguished by only a very small average difference." "The capacities of the human intellect are unequal to the task of carrying in mind and weighing one against the other a long procession of substantive and a long procession of control cases" (*The Lancet*, Dec. 21, 1912, p. 1701). "We have already seen that our inability to carry in mind and evaluate such long sequences of cases as are, in the case here in question, indispensable, makes it futile to employ the experiential method for the detection of fine differences," that is, as in the above instance of pneumonia, for the detection of ineffective lines of treatment. It is also the case that the "experiential method" allows of the complementary misapprehension, that is, of the results of treatments, in reality ineffective, being taken for a long time as indicative of valuable success.

These facts notwithstanding, the application of the other mode of study, "the statistical method," by which the Witwatersrand information was reliably obtained, is not countenanced by the authors under review, as has been observed already, and the grounds leading to their position, as well as the purport of the general analysis of methods, by which they prefaced the publication of the Witwatersrand result, are stated by them as follows (p. 1701). "These general considerations have prepared the way for bringing forward the suggestion that the ideal of minutely accurate quantitative statement which is always floating before the vision of the statistician should in the field of clinical medicine be frankly abandoned. This would

* *Vide* J. Freeman M.D., Assistant in the Department of Therapeutic Inoculation at St. Mary's Hospital in the *Proceedings of the Royal Society of Medicine*, 1910 Vol. III, or in J. Nachbar's "Vaccine Therapy its Administration Value and Limitations," 1910 (Longmans Green & Co.)

* *Vide* Sir A. E. Wright's Address in the above *Proceedings of the R. S. of Med.*, 1910, or in Nachbar's work just quoted, pp. 13 and 32.

mean recognising that it is, in medicine, impossible by the method of cumulative experiments either (a) to detect minute differences or (b) to arrive in any case at any accurate quantitative conclusions.* The frank recognition of this would, in point of fact, leave the practice of medicine practically unaffected. For, both in the case where the question arises whether we are, or are not, to apply a method of treatment which is doubtfully effective, and in the case where we have to elect between two alternative lines of treatment which are almost equally effective, it will not seriously matter what choice we make."

The latter conclusion will probably meet with some dissentient opinion, as the choice is apt to matter from the patient's and also from the physician's points of view. In the "vaccine therapy" treatment, with which the authors were concerned in the report referred to, the plans devised notoriously involve complicated procedures for the operators, and a corresponding amount of bodily pain and trouble, and material sacrifices for the patient. There is sample-taking and microscopic and other scrutiny of the patient's lesions and blood, "autogenous vaccine," simple or "polyvalent," is manufactured in a laboratory for the individual use of the patient under treatment, if circumstances permit, repeated appointments are made for injections of that "vaccine" and for one or several successive sample-takings of blood after each of the injections, technical work is again gone through in a laboratory, subsequent to every sample-taking, for the determination of the "opsonic index" and the plotting out of an "immunisation curve," and for the selection of the time and dose for the next injection, and so on. The knowledge that a complex plan of treatment like the one outlined, or a treatment on similar lines, does not exceed in efficacy an "expectant method," and is, in fact, 'absolutely ineffective,' as in the particular instance on p. 20, must necessarily be considered essential, and even were a treatment devised for application by practising physicians in all respects simple, it must still be thought desirable, from the scientific and practical standpoints, to know whether its curative effects are real.

IV

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* *Vide* Section II *supra*, and the evaluation of the Witwatersrand treatment—W. M. H.

blood-letting, for the detection of ineffective lines of treatment. It is also true that the "experiential method" allows of the complementary misapprehension, that is of the results of treatments, in reality ineffective, being taken for a long time as indicative of valuable success.

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STUDIES IN MALARIA

By H. STOTT, M.B.,

Captain, I.M.S.,

Surgeon to His Excellency the Governor of Madras

(Continued from page 175)

III

THE INJECTIONS OF QUININE IN MALARIA

THERE is at the present time in India a considerable amount of suspicion of the injection of quinine in malaria.

OBJECTIONS —

I *The Risk of Tetanus*

Much of this suspicion has been fostered by those exceedingly rare but appalling disasters of tetanus which have been known to follow the injection of this drug.

Recently this suspicion has received additional support from ingenious experimental work which has been put forward. It is suggested that the possibility of latent tetanus spore carriers exists amongst whom especially if already debilitated by malarial disease, the quinine injection gives rise to local and general conditions favourable for tetanus spore germination. A chance phagocyte laden with spores from a latent reservoir reaches the local area damaged by the injection incubates there, and tetanus develops (*). This possibility has been adversely criticised, in practice appears hypothetical and lacks confirmation to an extent commensurate with so important a subject.

But granted that tetanus may very rarely follow the injection of quinine, there is in this no reason why a patient should be deprived of the undoubted clinical value it bestows when by this means he may perhaps quickly escape his infection. And especially is this so since we presumably know that the rational reasons for the development of tetanus after quinine injection only force the necessity for the absolute sterility of the procedure upon us.

* Cf. Section II, *supra*, and the evaluation of the Witwatersrand treatment — W. M. H.

* See Memoirs by Officers of the Medical and Sanitary Departments of the Government of India No. 43.

During the past four years, in spite of the many thousands of quinine injections which are annually given in India, there has been no rumour which has gained publicity of any case of tetanus following hypodermic quinine. On the other hand, with certainty, several cases of tetanus after operations have occurred. All surgical procedures have not therefore been prohibited. Again, the benefits derived from plague inoculations were not withheld because tetanus from faulty preparation or administration was not unknown in the early days of its history. Nor is the infusion of Salvarsan at present prohibited because death following its injection is by no means an unheard-of event. And in this case especially since the mortality is usually due, not presumably to contamination, but directly to the toxic effects of the drug itself.

The case against the injection of quinine, because of the almost negligible risk of tetanus which almost certainly arises from faulty technique, does not therefore appear to justify itself.

(II) — *Local Precipitation*

A second objection is that a proportion of the salt may be deposited at the site of injection as a solid precipitate or a gelatinous mass. By experiments *in vitro* the deposit resulting from the mixture of equal parts of ox blood serum and a 1 in 20 solution of quinine was found to contain as much as 50 % of the salt, probably transformed (oxidised), combined with proteids, and therapeutically useless*. A painful induration may thus be formed and local necrosis even to aseptic gangrenous ulceration result.

Without doubt in practice these indurated spots do occur, and in the rabbit it is easy to demonstrate the gelatinous precipitate, slough and aseptic ulceration following the hypodermic injection of quinine. Quinine experiments with small animals should however be received with extreme caution. For in the first place, the great majority of these animals are herbivorous in nature. Whence presumably their blood serum is more alkaline, and the local reaction consequent on the injection of an irritating acid solution greater than in carnivorous man.

In the second place, as a rule the amount of quinine given these small animals per gramme body weight would seem to be enormous. Semple found that 1 grain per 150 grammes of guinea-pig was an approximate minimum lethal hypodermic dose for this animal, and that the dose of an injection sufficient to produce well-marked visible effects without killing the animal was 1 grain per 350 grammes of guinea-pig. The former corresponds to a hypodermic injection of 420 grains of quinine for a man of 10 stone

weight, and the latter to an injection of somewhat under 200 grains. No wonder local effects after these guinea-pig experiments were in all cases evident.

But also, without doubt, the formation of indurated spots is to a large extent dependent on the technique of the injection. In over 200 subcutaneous injections of my own there have been only quite a few cases of indurated lumps, decreasing in number as the technique improved. Some sign of the lump though usually diminished in size, may still be found months and perhaps years after the injection. It is always easy to produce an indurated lump if the endeavour so to do is made. There was no case of local gangrene with ulceration in the series, though of course such cases have in the past undoubtedly occurred. The objection to these indurated spots, apart from the discomfort to the patient, is twofold. Firstly, they probably mean that only a portion of the quinine is absorbed to combat the disease, and secondly the consequent damage to the tissues certainly predisposes to the incubation of any virile tetanus spores or other germs which may have been introduced at the time of the injection from faulty technique.

(III) — *Other Objections*

Quinine is undoubtedly a protoplasmic poison and as such will produce some irritation wherever and however injected. Thus a tendency to tissue damage will always be present. The drug too, as is well known, is thought to have some paralysing effect on phagocytes which will be produced—both generally after absorption and also locally as a negative chemiotaxis. Around the injection site a tendency to diminish phagocytosis will therefore exist. Again if quinine be badly injected into an unsuitable locality near the course of a large artery or vein, and if considerable precipitation with necrosis from direct poisoning and local pressure results, thrombosis of the blood channels may of course occur. This however is an event for which the operator is entirely and doubly responsible, and cannot be advanced as an argument against the injection of the drug. So also anaesthesia or paralysis may ensue if an important nerve trunk is implicated under the above circumstances.

Sepsis, though probably more likely to arise than after other medicinal injections, owing to the increased tendency to local tissue damage by quinine, is again under the control of the operator and should never occur.

Whatever be the theoretical or experimental arguments against the injection of quinine, and even if a proportion of the drug injected is occasionally precipitated, there is absolutely no doubt of its practical value as a direct curative agent in certain conditions of malarial infection.

* MacGillchrist, Sci. Mem. No. 41, p. 10

Every objection to hypodermic quinine may be overcome by a careful attention to technique

CLINICAL EVIDENCE AS TO THEIR VALUE

Amongst my 1,019 cases were a series which appeared to derive definite benefit from the injection of quinine, at that time usually given subcutaneously. The present argument is not that hypodermic quinine should replace oral quinine in the everyday treatment of malaria, though a large series of cases alternately treated by the two methods would be most interesting, but that quinine given hypodermically is therapeutically active, and that in certain cases quinine injections will succeed where oral quinine has failed. Singly quoted cases are therefore admissible as evidence.

The benefited cases fall roughly into four groups —

(I) — *Cases treated with quinine injections, and not receiving oral quinine at all*

Three charts of this group are reproduced. In each the subcutaneous quinine appeared to markedly influence the course of the pyrexia, and thus lead one to believe that even after the small quantity given (approximately six grains at each injection) sufficient was absorbed to be of practical benefit to the patient. The first (Chart 2) was a non-malignant case with intermittent pyrexia which was easily checked by quinine injections. The second and third both exhibited malignant symptoms, the one running an intermittent and the latter a remittent type of pyrexia. The former case (Chart 2) passed into coma for 36 hours on the third day of his disease, subcutaneous quinine rapidly proving effective.

The third case (Chart 3) was an especially severe one with fully developed pernicious symptoms, which I think seemed to respond to treatment certainly quicker and more fully than if oral quinine had been prescribed. His history was as follows. On 15-1-10 the patient was seized with ague. After continued fever on the 16th he became drowsy with intervals of wandering and delirium, on the 17th his expiration was markedly grunty. On the two following days he was wandering in the early morning, drowsy midday and delirious towards evening. His spleen became palpable. During the night of the 19th with a fall in temperature of 7 degrees he sweated profusely for the first time, but his mental condition remained unchanged. On the 21st he was again delirious, spleen puncture, lumbar puncture and widals all proving negative. On the 22nd day his mental condition cleared and thereafter progressed fairly rapidly towards recovery. The only quinine he had during the fever was the five consecutive subcutaneous injections of grains VII to V from the 17th to the 21st. He subsequently suffered

two relapses within the three following months and thereafter none until 4-11-13 when I last heard of him.

(II) — *Cases cured by quinine injection when oral quinine had comparatively failed*

Chart 1 illustrates perhaps the best example in the series of success by quinine injections (in this case, intramuscular) when an average of 30 grains per diem by the mouth for 22 days had failed to influence the malarial pyrexia.

Chart 14, Part III, Chap 1, sets out a case in which the fever of a malarial infection slowly dying under oral quinine was at length suddenly terminated by quinine injections.

(III) — *Cases taking oral quinine, apparently influenced by quinine injections*

The evidence furnished by cases in this group is naturally not so clear. One case (Chart 5) of many, may however be quoted as a fair example. The fever started as a quotidian intermittent, became remittent, and finally terminated as a tertian pyrexia. The first three injections on the 7th and 8th days reduced the height of the pyrexia for the two succeeding days somewhat. The second series of injections from the twelfth day apparently determined the temporary cessation of the persistent infection, which however on omitting oral quinine relapsed later.

(IV) — *Chronic relapse cases cured by quinine injections*

One of the most forcible ways in which quinine injections prove their value is in the cure of persistently relapsing malarial infection. Especially is this so amongst Europeans because perhaps the influence on their daily lives is readily seen and their gratitude is obvious.

Chart 6 illustrates a case of a Burmese Sapper who suffered four admissions for malaria within three months although he took a course of curative quinine between his visit to hospital. After six daily ten-grain quinine injections he had had no re-admission up till 9th November 1913, when I last heard of him.

INDICATIONS FOR QUININE INJECTIONS

There would seem to be three definite indications for the injection of quinine in malaria.

(i) The exhibition of any malignant symptom, or the feeling that any individual case does not seem to be progressing so well as could be desired.

(ii) The persistence of the fever under adequate dosage of oral quinine.

(iii) Repeated recurrence of malarial relapses apparently uninfluenced by a curative course of oral quinine.

The hypodermic needle must be ever ready in any case of malarial disease. As Manson teaches

the most innocent case may at any moment assume symptoms the cause of which may rapidly become dangerous to life

Chart 7 illustrates an excellent example of this untoward condition and records the only death from malaria amongst my series of 1,019 cases

The patient was in hospital with an apparent straightforward attack of regular intermittent malignant tertian malaria. There was no indication that the case was in any way abnormal. About 3-30 P.M. on the fourth day of his illness, and subsequent to his taking 90 grains of oral quinine during the previous three days, he was seized with sudden dyspnoea, involuntary passage of urine and coma. He died without cyanosis within one hour from the onset of his pernicious symptoms, which were probably due to the direct involvement of his medullary centres

THE FAILURE OF QUININE INJECTIONS

In reviewing the charts of my cases treated with hypodermic quinine, two facts stand out clearly —

(I) The injection of quinine will cure some cases which are resistant to oral quinine, and (II) the injection of quinine will likewise occasionally fail to affect the course of malarial infection

In the latter circumstances the failure is occasionally due to the injection being too long delayed. Chart 8, though not one of my series, illustrates a case in which hypodermic quinine was withheld for 56 hours after the onset of pernicious symptoms. The patient died. This case emphasises the importance of injecting quinine directly the disease assumes an abnormal course

But undoubtedly other cases do occur, and in Mandalay they were not exceedingly rare in which the injection of quinine unaccountably fails, just as oral quinine occasionally fails to influence an undoubted malaria pyrexia

THE ADVANTAGE OF HYPODERMIC OVER ORAL QUININE

It is not easy to understand why hypodermic quinine at times succeeds where oral quinine fails. It may be occasionally due to defective assimilation of the drug when given by the mouth. Whereas hypodermic medication stands apart from the success of this process

Or, at times, the essential parasite-slaying element of the quinine may be conceivably altered during its passage through the bowel wall or the portal circulation and liver. This route hypodermic quinine escapes, passing as it does directly into the systematic circulation. There is some evidence to support a belief that the element of quinine responsible for the ordinary symptoms of cinchonism may not be identical with that essential part endowed with anti-parasitic power. Several cases suffered from severe

cinchonism without any visible effect on their malarial pyrexias. And this was not due to the development of any hypothetical anti-quinine immunity by the infecting parasite, for in some instances hypodermic quinine immediately produced its anti-parasitic influence to the full — (Castellani and Chalmers "Tropical Medicine" p 671)

TECHNIQUE OF THE INJECTION

From what has been indicated above it is apparent that there are two points requiring the most careful attention when giving any injection of quinine, namely,

- (i) that no tetanus bacilli or spores are injected, and
- (ii) that the risk of local precipitation is minimised as far as possible

As regards the first point, it is fortunate as Semple states* that "quinine being a protoplasmic poison is not likely to harbour living tetanus spores before being dissolved, the acidity of the tabloids used nowadays would not admit of any tetanus spores remaining alive in them. On numerous occasions he has made anaerobic cultivations from quinine tabloids, but has never succeeded in isolating tetanus bacilli."

The apparatus illustrated is a useful model for the sterilisation of the syringe, needle, watch glass, and forceps. It is convenient for the latter to have a silk thread attached by which to raise it from the water when required. The spores of some strains of tetanus bacilli are able to resist boiling for 40 to 70 minutes†. The sterilizer should therefore be half filled with distilled water, the details placed therein and boiling continued for one and a half hours. It was my routine to carry out this part of the operation whilst doing office work before visiting the wards. The watch glass is lifted from the water with the sterile forceps, and a tabloid is conveyed from its tube to the glass in a similar manner. The syringe is fitted together. Sufficient sterile water from the sterilizer is placed on the tabloid in the watch glass, the solution is raised to boiling point for a minute or so. If it is required to give an intramuscular injection, the gluteal region or deltoid is usually chosen. If subcutaneous, the most favourable spot is probably deep to the loose fat skin of the abdomen. The skin is well cleaned with soap and water, followed by an antiseptic in the usual manner.

As regards the second point, in order to diminish the risk of local precipitation there are several details deserving of notice. The salt of quinine chosen should be a soluble one such as the bihydrochloride. I noticed in practice that perhaps naturally a painful lump was more frequent after an injection of quinine sulphate dissolved

* Sci. Mem. 43, p. 4
† Sci. Mem. 43, p. 7

THE OPEN METHOD OF TREATMENT OF FRACTURES

By LT COL THOMAS JACKSON, M B, B CH, I M S,

Surgeon Superintendent, St George's Hospital, Bombay



No 2

THE OPEN METHOD OF TREATMENT OF FRACTURES

By LT -COL THOMAS JACKSON, M B, B CH, I M S,
Surgeon Superintendent, St George's Hospital, Bombay



No 3



No 4

in dilute hydrochloric acid than after an injection of the bihydrochloride. After the needle has been introduced as deeply as possible beneath the skin and subcutaneous fat the drug should not be injected rapidly into one spot. The needle point should be made to traverse a line or describe a semi-circle with the skin puncture spot as centre, the salt being slowly injected the while. Immediately after the needle has been withdrawn and at intervals for some hours, deep local massage should be practised. It would not perhaps be ever wise to inject more than ten grains, and preferably not more than seven, into one spot, because of this risk of local precipitation. In a bad case seven grains might be injected twice or thrice daily. In a worse case an intravenous or intraperitoneal infusion of quinine containing a requisite amount (15 to 20 or more grains) of the drug is indicated.

Provided the bihydrochloride is used and the above points are carefully attended to, I believe painful indurated lumps will be so rare as to be negligible.

A Mirror of Hospital Practice.

THE OPEN METHOD OF TREATMENT OF FRACTURES

BY THOMAS JACKSON, M.B., B.CH.,

LT COL., I.M.S.,

Surgeon Superintendent, St. George's Hospital, Bombay

THE following cases treated in the St. George's Hospital, Bombay, illustrate well the value of the open method of treatment of fractures. I enclose copies of skiagrams.

No 1* was a fracture of the shaft of the femur at about the junction of the upper and middle thirds. The patient, a male, fell into the new Alexandra Dry Dock from a height of about 20 feet on 20th January, 1914. After the accident the injured bone was set and treated on a long splint. As there was no shortening and little or no apparent deformity excellent results were expected. After six weeks, however, there was no union and there was moreover severe pain on handling at the seat of fracture. The fracture was then exposed on 17th March, 1914, and the ends of the fragments cleared of callus and soft tissues and the bone plated.

The patient was discharged on the 4th June, 1914, with a useful limb and the plate *in situ*.

No 2 was that of a comminuted fracture of the tibia and fibula in an old lady caused by her having been knocked down by a heavy motor car.

The patient was exceedingly stout and anything but a good subject. On admission to hospital on 17th March, 1914, there was a great deal of swelling. The fragments were very movable and appeared to be floating about in a mass of fluid. When the fragments were exposed a few days after the accident (26th March, 1914) there was found extensive hæmorrhage about the fragments. A plate was applied and a ring of silver wire was placed round the smaller fragments to keep them in apposition. After 14 weeks the plate and wire were removed as they were giving rise to irritation. There was then good formation of callus and the plate and wire were no longer necessary. On the 17th August, 1914, the patient was discharged with a sound limb.

No 3 was a compound fracture of the left forearm, in a telegraph operator. The wound was treated at first to secure its healing without sepsis and not much attention was paid to the fracture, although splints had been applied. When he came under my observation the skin wound had healed but there was great deformity of the limb. On 7th February, 1915, 10 days after the date of injury, the fractured bones were exposed and the fragments of the radius were apposed and kept in position by a wire suture. Skiagram No 2 shows the bones after the operation. The patient will be leaving hospital within the next few days. The forearm is quite sound. There is no deformity and movements are satisfactory.

No 4 was a patient who six months before sustained a fracture of the lower end of the radius. He was admitted on 19th January, 1915, for a recent greenstick fracture of the ulna. As there was much deformity which could not be rectified by external manipulation, the fracture of the radius was exposed, 26th January, 1915, and a portion of the lower fragment was clipped off and the ends brought into apposition. No plating or wiring was necessary. At the same time the greenstick fracture of the ulna was easily straightened. The patient is now convalescent. Skiagram No 3 shows the bones after operation.

The great advantage of the open method of treatment of fractures is that the fragments can be exactly apposed, which is often impossible by external manipulation, where one works more or less in the dark. Having apposed the fragments they are easily kept so by plating, in suitable cases, or by silver wire sutures, or sometimes by a ring of silver wire, or by screws or pegs. There thus need no longer be the shortening and deformity which in the past was a frequent result of fractures of the shafts of long bones especially the femur. With proper aseptic precautions there is no more danger in exposing and handling fractured bones than there is in cutting and handling the soft tissues.

* Photo too faint to be reproduced.—ED.

A CASE OF FISH POISONING

By S K MAZUMDAR,

Asst Surgeon, Port Blair

BODY of a Burmese male, aged about 45 years, was brought to the Viper hospital, early in the morning of the 30th November, 1913, for *post mortem* examination

History—The man had taken at about 9 P M the previous night, *i.e.*, of the 29th, a full meal of rice and a large quantity of what is popularly known in Port Blair as the 'Pipa-machchi, or the globe fish (*Tetrodon pennantii*). This was the only thing he took in addition to the ordinary food partaken of by his Hindu companions, who do not take this fish. From about midnight he began to have severe abdominal pains with itching, and brought out a little fluid (saliva) only, without any food material, every time that he vomited, and died early in the morning at about 3 A M, with aggravation of these symptoms. No further particulars could be had, as the man was working in an outstation, and died before any medical help could be given.

The man had always kept good health before this, and had never had any heart trouble, as could be inferred from his medical history sheet.

Post mortem on 30th November, 1913

Along with the body was sent some big bits of the fish of which he had partaken the night previous. This fish had evidently been roasted, as its thick prickly skin was charred in some places.

The body was that of a well-built Burmese male, aged about 45 years. Rigor Mortis—present. Blood-stained fluid coming out of the mouth. Pupils—normal. No signs of injury. Veins of neck very much engorged.

Scalp and Brain—Vessels full.

Lungs—Left lung adherent to chest wall all round by old adhesions. Both lungs otherwise healthy. Weight—1½ lb each.

Heart—Weight 14 oz, flabby, enlarged and rather fatty. Right side full, some ante-mortem clots in right ventricle. Valves—healthy.

Stomach—Contained about 12 oz of partially digested rice and fish. Some fish bones, bits of the liver and the two eye lenses present. Mucous membrane congested and specially so near the great curvature and the pylorus.

Small intestines—Duodenum congested, its first portion acutely so, and almost raw-looking.

Large Intestines—Contained healthy faecal matter.

Liver—Weight 4½ lbs, flabby, enlarged and congested. Gall-bladder—full.

Spleen—Weight 12 oz, healthy.

Kidneys—4½ oz each, congested, bled on section.

The stomach contents could not be chemically examined here, but the *post mortem* signs were

evidently those of a gastric irritant and cardiac poison.

The bits of fish brought for examination were quite good, without any signs of putrefaction nor was there any suspicion of poisoning, homicidal or suicidal, by any of the common irritant poisons, such as arsenic.

In view of all this, it was returned as a case of fish poisoning. This particular fish is popularly known amongst the convicts here to be poisonous, and is rarely, if ever, taken by them. Its liver in particular is blamed for its poisonous properties, and cases of death are said to have occurred before, though no authentic recorded cases could be found.

Poisonous effects by certain fish, may be due to either of the following—

(1) Idiosyncrasy—rendering the fish poisonous to the particular individual only, and not to others.

(2) Fish usually non-poisonous becoming poisonous to all under certain conditions, *viz.*, from poisonous food eaten by the fish, the fish being in spawn, decomposition, etc.

(3) Certain parts only of the fish being nearly always poisonous, due to poisonous secretions, *e.g.*, "the liver of the ball-bladder (*diodon*)", "the head and intestines of the *Gobus cinniger*" (Lyon), "the sexual organs of the female in *tetrodon*, the fish being acutely poisonous at the breeding season" (Baird).

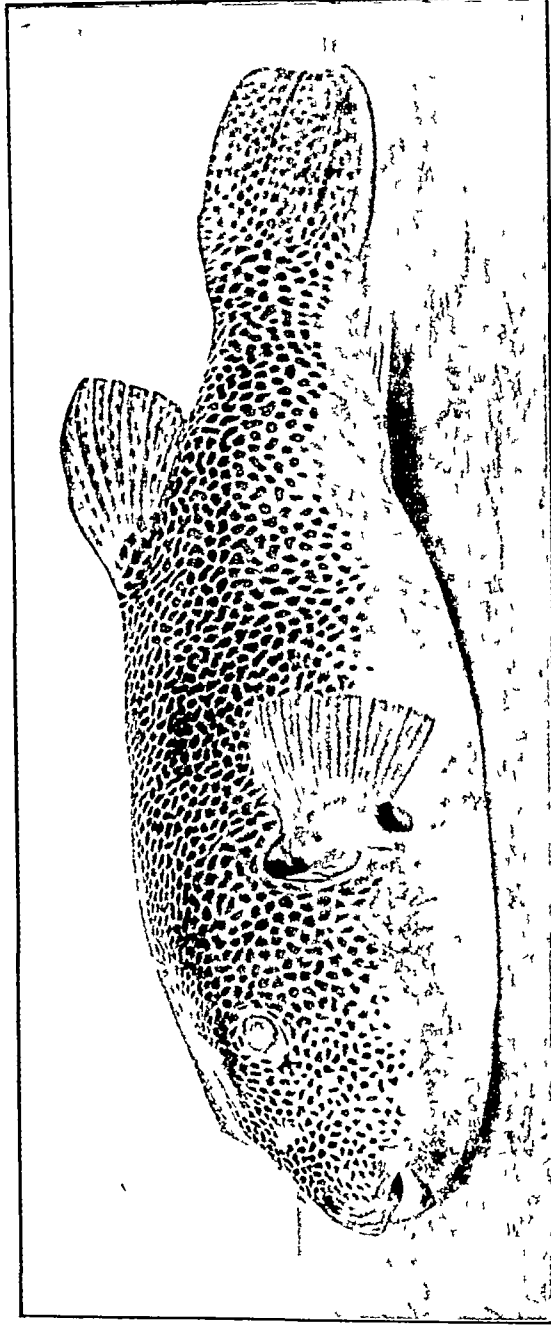
In this case, there is scarcely any doubt about this particular fish being poisonous, but I could not make out what particular part of it was so whether it was the liver as in the *diodons*, or the other secretory organs, or the female sexual organs as in the other *tetrodons*.

In this connection, I think it will not be out of place, if I mention a few things about this fish, which I noticed in one procured with some difficulty for me, a photo of which is given here.

The Pipa-machchi or the globe fish, (*Tetrodon pennantii*), is an ugly looking fish, the front part of which with the head is disproportionately big. It has no scales, and body is covered by a thick and tough skin with more or less prominent prickles all over. The skin over the back is speckled with dark and light patches and provided with minute prickles, while that over the abdomen is of uniform light colour with more prominent prickles. The air bladder can be inflated to an enormous size, thus making the abdomen, and the spines over it, very prominent. The mouth is provided with 4 teeth, 2 in each jaw, forming a very powerful beak, which can easily break up the shells of shell fishes into smaller bits. The liver is of enormous size, and almost fills up the abdominal cavity. The most interesting part is the gastro-intestinal tract. The stomach is found full of big bits of shells of the common sea-mussel, while the intestines are loaded with dark powdery refuse. Evidently the big bits of shells that are

A CASE OF FISH POISONING.

By S K MAZUMDAR, -
Asst. Surgeon, Port Blair



The Globe Fish (*Tetrodon pennantii*)

found in the stomach, are gradually reduced to the powdery refuse, during their passage through the alimentary canal. It is marvellous how this is done during their passage through such a small length of the gut. The digesting secretions of the stomach specially, must necessarily be very strong in order to be able to digest the shells, and it is no wonder that these secretions, whatever they and their composition may be, can very well produce signs of gastric irritation in the human stomach after ingestion.

My thanks are due to Mr A. Boomgardt, the P. W. D. supervisor, for kindly taking a photo of the fish.

THE USE OF HEXAMETHYLENE TETRAMINE IN SEPTIC INFLAMMATIONS OF THE CORNEA AND CONJUNCTIVA

By H. KIRKPATRICK, M.B.,

MAJOR, I.M.S.,

Ophthalmic Surgeon, Madras

It is of course well known that urotropin is excreted in many of the body secretions if taken in fair sized doses, and the fact that it is found in the cerebro-spinal fluid would lead one to suppose that it might possibly be contained in the ciliary secretion, this view, however, is not correct, as Captain Cross, the acting chemical examiner at Madras, was unable to detect any of the drug in some specimens he was kind enough to examine for me, of aqueous humour obtained previous to cataract extraction from the anterior chambers of patients who had been dosed with urotropin. The clinical results of treatment by the drug in cases of septic infections of the iris, cornea and conjunctiva were sufficiently good to lead me to believe that if not excreted by the ciliary body it was undoubtedly so by the lachrymal gland, and this belief is confirmed by Major Miller, the chemical examiner, finding it in the tears of a patient with a septic ulcer of the cornea who was under urotropin treatment.

The first patient on whom the treatment was tried was seen by me five days after a cataract extraction had been performed. The edges of the corneal wound were much infiltrated and partly sloughing, the anterior chamber was half full of pus and the pupil was blocked by exudate, vision was reduced to perception of hand movements. He was put on urotropin 15 grains every four hours and given a subconjunctival injection of cyanide of mercury with atropin and irrigations in addition. He cleared up in a very striking manner and in four weeks time had a quite useful eye, with a vision of 6/36 when corrected. I am convinced that had it not been

for the use of urotropin he would have lost the eye.

A second case was that of a man who suffered from gonorrheal ophthalmia. The right eye had been attacked three weeks previous to my seeing him and the left was infected a few days later. When first seen the right cornea had sloughed completely whilst there was an ulcer on the left with a prolapsed iris. The bulbar conjunctiva of each eye was very chemosed and the palpebral excessively papillary with a profuse purulent gonorrheal discharge. His general condition was bad. He was given the usual treatment with the addition of 15 grains of urotropin three times a day, and I was much struck by the rapidity of his improvement. In 12 days the conjunctivæ were nearly normal. Unfortunately after three weeks' treatment he insisted on going home, his left eye being then practically well with fair vision but in danger from the large anterior synechia.

I have treated several cases of hypopyon keratitis with urotropin given in doses of 15 grains thrice daily, and am quite sure that it has hastened the cure of the disease. It will often be found sufficient to use urotropin with atropin and a paracentesis will only be occasionally necessary. I have no doubt that hexamethylene-tetramine is excreted also in the nasal secretions, as I have found it a specific for the acute type of infectious cold. It seems to act best when the cold is about 24 hours old, so that formalin inhalation, ammoniated tincture of quinine, etc., still have then uses during the first few hours. I have not found patients complain of any discomfort when taking 45 grains a day, but when taking 15 grains every two hours myself I found it gave rise to considerable irritability of the bladder which passed off about four hours after taking the last dose. The exceedingly heavy cold from which I suffered on this occasion was completely cured in 24 hours.

I am very greatly obliged to Major Miller and Captain Cross for the trouble and interest they took in analysing the specimens.

REPORT ON A CASE OF BITE FROM NAIA TRIPUDIANS TREATED AT THE HARDA BRANCH DISPENSARY—RECOVERY

By B. R. KHISTY,

ASSISTANT SURGEON

At 2-20 P.M., on 6th April 1915, a mill-hand, named Shaikh Abdul, Mahomedan male, age 30 years, came to the dispensary and reported that at about 2 P.M., while he was removing some boxes from his room, he was bitten on the middle finger of his right hand by a *Kâlâ Nâg*, and swore to having seen the expanded hood of the same as it struck at him. He had at once

placed a tight ligature with a hempen string on the proximal phalanx of the finger and hurried to the dispensary

The finger presented at its tip on the palmar surface a minute puncture mark and another was underneath the nail. There was slight swelling of the finger. The man was perfectly conscious and normal, and no constitutional symptoms had set in.

Immediately, a rubber Esmarch was placed tightly round the right arm, and the puncture marks were incised deeply and allowed to bleed. Some dark blood escaped. Powdered potassium permanganate was rubbed into the incision, 40 c.c. of antivenene (Date 8th March 1915) were injected subcutaneously 20 c.c. in each flank, as there were no urgent symptoms. The man did well till 4-30 P.M. The ligatures and Esmarch were taken off after the injection of antivenene.

At 4-30 P.M. it was noticed, that he was feeling weak in his legs, so that he had to be helped to move about, about the same time his eyelids began to droop and he could not raise them. He felt a sense of dryness in his throat, there was laryngeal paralysis. He was constantly trying to clear the stringy mucus that collected in his throat. His lower lip fell away from his teeth. Frothy saliva trickled down his lips which he was trying to clear by his hand. His speech had become distinctly nasal owing to paralysis of his soft palate.

At about 4-45 P.M. he vomited and passed a quantity of urine. After this some milk which was given to him could not be swallowed but returned through his nostrils. From 2-20 P.M. to 4-30 P.M. he was given tea to drink which was swallowed all right. He was perfectly conscious, pulse, and respirations normal.

As the paralysis was increasing 20 c.c. of antivenene was injected subcutaneously in his right flank at 5 P.M. Effects were watched till 5-30 P.M. as there was no improvement, 20 c.c. were injected intravenously into his right median basilic vein. After this he continued to improve and by 7-30 P.M. he was decidedly better. By 2 A.M. in the morning the symptoms of paralysis had altogether passed away. At about 8 A.M. on 7th April, 1915, he could walk about and talk freely, and beyond giddiness in the head and pain at the site of incision there were no other symptoms. He was discharged, cured on 8th April, 1915.

The snake was killed at about 3-30 P.M. on the same day, *z.e.*, on 6th April, 1915. It was of dark colour. The anal scale entire and ventral scales broad. Length $4\frac{1}{2}$ feet, and it was $1\frac{1}{2}$ in diameter at the thickest part. Tail rounded. The two great characteristics of *Naja Tripudians* as detailed by Lt.-Colonel Wall in his book

"*Poisonous Terrestrial Snakes*" were present, *viz.* (1) The pre-ocular shields touched the internasal, and (2) there was the cuneate shield between the 4th and 5th infraorbital shields.

A CASE OF ASPHYXIA, THE RESULT OF INHALING FOOD MOST PROBABLY IN THE ACT OF VOMITING

BY C. C. MURISON, I.R.C.S.(E), D.P.H., D.T.M.,

MAJOR, I.M.S.,

Acting Police Surgeon, Bombay

THE following notes may perhaps interest some of your readers —

On the 13th September 1914 at the request of the Coroner of Bombay, I performed a *post mortem* examination on the body of a Hindu woman aged about 22 years who was said to have died under suspicious circumstances. Some of the respective relations of the husband and the wife, a few days earlier, had a quarrel and as no one was present when the deceased died in her house, some of the relations suspected foul play, and so informed the police, who asked the Coroner to dispose of the case.

The Police Officer in charge of the case gave the history that many years ago the deceased had had pleurisy and during the last few years she occasionally had very severe coughing attacks which invariably ended in vomiting.

She was not eating at the time of her death and no vomited matter was found in the room.

The following are the important particulars found at the *post mortem* examination —

- | | | |
|---|--------------------|--------------------------------|
| 1 | Œsophagus | } Contained semi-digested food |
| 2 | Larynx and Trachea | |

3 Lungs, &c. On opening the body both the lungs were prominent. Left lung was adherent to the chest wall at the back and outer side. Both lungs on removal from the chest cavity retained their shape and on palpation were more doughy than crepitant, and on section a white mottling was seen and a fine vermicilli-like substance could be squeezed out of the air vesicles. This vermicilli-like substance on closer examination was found to be semi-digested food.

4 Stomach contained about 2 ozs. of semi-digested food similar to that found in the œsophagus, larynx, trachea and lungs.

5 Blood of the body was very dark and fluid and on exposure to the air it became red.

6 Other organs were normal.

In my opinion I gave the cause of death to be "Asphyxia" the result of inhaling food, most probably in the act of vomiting.

Indian Medical Gazette.

JUNE

AN INDEPENDENT MEDICAL COLLEGE

THE *Calcutta Gazette* (of 21st April, 1915) contains an important Resolution on the proposal to raise the status of the Albert Victor Institution at Belgachia, Calcutta, to that of a Medical College

The Government of Bengal has taken much interest in improving the position and prestige of the non-government medical men in Bengal, generally called the "independent" medical profession. The New Bengal Medical Council Registration will, it is hoped, eventuate in establishing the whole medical profession as a self-governing body and will protect practitioners from the unfair competition of unqualified men. Many new appointments have been created for non-government medical men, in some of the house appointments at the Medical College Hospital and on the honorary staff of other large Calcutta hospitals. The new State Medical Faculty will enable men to enter the profession either as Members or Licentiates of that Faculty, who are not able to aspire to the degrees of the local University. The License of the Faculty will be especially useful in co-ordinating the standards of the teaching and of the examinations of both Government medical schools and of such private medical schools as "will in the future succeed in obtaining the approval of the Council of Medical Registration to their teaching and training."

It is, however, recognised that it is not possible to train and teach in the Government Medical College the large crowd of candidates who aspire to the higher branches of medical education, and more room is wanted. The Committee of the Albert Victor Institution have therefore approached Government with a scheme to provide a second fully equipped college for higher medical education, and the Governor in Council has most sympathetically considered the proposal. It is admitted that the present defects in the equipment of the Albert Victor School make it impossible for Government to recognise it in its present condition and Government has given considerable grants towards its improvement, viz Rs. 35,000

for land, an advance of 38,000 more for the same purpose and a gift of Rs 18,000 to help it over temporary difficulties.

To make a decent college of the present institution it will be necessary to rebuild much of it and to increase the accommodation up to not less than 200 beds. The cost of these improvements is estimated at 7½ lakhs, and the recurring cost of upkeep will not be less than Rs 1,20,000 per annum.

As the Government Resolution says —

"It was recognized that for the success of the scheme very considerable Government assistance both initial and recurring would be required, while at the same time it was an important feature of the proposal that the independent medical profession should be given an opportunity of showing that they were competent not only to teach the rising generation of medical students, but also to administer without detailed official interference a Medical College and Hospital of the importance and standing that Belgachia will have, if the proposals are carried out, and therefore the detailed supervision that would ordinarily be a condition of a large grant of public money must be reduced to a minimum. The details of the scheme finally agreed upon with the Committee were the following. The Belgachia Institution should cease at once to have any further connection with vernacular or school education, and should erect the buildings and set up the equipment necessary to obtain affiliation to the M. B. course from the University. Of the cost of this it was proposed that Government should provide 5 lakhs and the institution should raise 2½ lakhs, the plans of the buildings to be erected must be approved by the Surgeon-General with the Government of Bengal, and the work would be done under the supervision of the Public Works Department, and the institution before receipt of the grant must execute a deed in favour of Government on the lines of those required from other educational institutions in return for Government grants. When affiliation has been obtained the efficiency of the teaching and equipment in conformity with the University regulations will be enforced by inspection on behalf of the University, while the general control and financial administration will be in the hands of an executive committee of nine. It was proposed that Government should give a grant of Rs 50,000 a year, while it was anticipated that Rs 30,000 would be received annually from the municipalities and Rs 10,000 from the University, the remainder of the recurring cost being met by fees and endowments. The Government grant which would be divided between the hospital and college would be dependent on the result of the reports of the University inspectors and of the Government officers who should be at liberty to inspect the hospital at any time, and in consideration of the grant Government would nominate three of the members of the executive committee. The hospital would

be under the administration and management of a Superintendent whose appointment would be subject to the approval of Government and who would work under the executive committee. It was further proposed that the first Superintendent should be attached for six months to the Campbell Hospital and then receive from Government a scholarship of £200 for one year, with a return passage to Europe, to enable him to undergo a practical training in a large hospital in Europe. The Government regulation and forms, altered where necessary, were to be maintained in the hospital, and the accounts would be audited annually by approved auditors."

It will be recognised that this is a very liberal offer on the part of Government. The Secretary of State has now sanctioned the grant of the 5 lakhs from Provincial Revenues and a recurring grant of Rs 50,000 per annum on the express conditions that no part of this initial 5 lakhs shall be given till the committee have raised the 2½ lakhs for which they have undertaken to be responsible, and the annual grant of Rs 50,000 shall not commence until the other grant promised or expected of Rs 40,000 is definitely made.

It rests therefore with the Committee of the Albert Victor Institution to fulfil their part of the arrangement, and the success of this experiment will now depend upon the independent medical profession in the Presidency.

Current Topics.

THE GENERAL MEDICAL COUNCIL

As Medical Councils of Registration have been established in several Provinces in India, and, as the question of a General Medical Council for India must soon arise, it is worth while to consider what are the functions and duties of the present Council of the United Kingdom, on the model of which the Medical Councils in India have been constituted.

The General Council of Medical Education and Registration commonly called "The General Medical Council" was instituted by the Medical Act of 1858 "*for the purpose of supervising medical education and establishing an official register, known as the Medical Register, in which are inscribed the names of those who have passed through a curriculum of medical study and have passed examinations in medicine, surgery, and midwifery which have been recognised by the Council*."

By virtue of that Act and subsequent Acts the General Medical Council now consists of 36 re-

presentatives, of which 26 represent the Universities and Medical Corporations of the United Kingdom whose degrees and diplomas have been recognised by the Council, five representatives are nominated by the King (three for England, one for Ireland and one for Scotland), and five are elected by the medical profession in the United Kingdom. The Branch Councils for Ireland and for Scotland are composed of the Irish and Scotch representatives, respectively.

The Medical Act thus established machinery whereby the qualified practitioner might be identified by the public, but it did not prevent foolish people from seeking medical assistance from persons "unqualified" in the sense of the Act.

The chief positive disabilities put by the Act upon the "unqualified" practitioner are three in number (Glaister) —(1) He is forbidden to use any title which he did not possess or to pretend that he was qualified in the sense of the Act, (2) he cannot recover fees in a Court of Law, and (3) he cannot sign valid certificates.

The qualified practitioner was recognised as such by his name being put upon the Medical Register—under the control of the Council, the only exception being "those who without diploma or degree claimed *on evidence shown* to have been in practice before a certain time prior to the Act of 1858 becoming law."

The Act declared that the Council must appoint a Registrar, and that it shall be his duty to keep a Medical Register.

It is therefore the accomplishment of the Act of Registration which makes a practitioner "qualified" by law to practise, it is not the possession of degrees or diplomas.

The name of a practitioner may be erased from this Register if he fails to return an answer, within six months, to a letter from the Registrar inquiring whether he has ceased to practise. A fixed address to which such letters of enquiry may be addressed is therefore necessary to the practitioner.

The duty is also laid upon the Council to lay down a minimum curriculum and range of subjects of medical study and from time to time to visit the examinations of qualifying bodies to ensure that the candidates who fulfil these tests possess "*the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery*."

Moreover in the United Kingdom the Council is also charged with the preparation of the British Pharmacopœia, the regulation of curricula and examinations for diplomas in public health, the scrutiny of the rules for midwives (under the Midwives Act of 1902), &c.

Moreover "by enactment, strengthened by decisions of the Courts of Law" (Glaister) the Council has attained to the position of a Court of

* Vide Glaister's *Medical Jurisprudence*, 3rd Edition, p 3, an admirable chapter in a first class text book.

Justice, and while so acting must conform in procedure to the procedure of a Court of Law. Its verdicts are either "guilty" or "not guilty of infamous conduct in a professional respect," when this verdict of guilty is pronounced the only sentence is *erasure* from the Medical Register of the name of the offending person. It can, however, postpone sentence and cause the offender to appear for judgment after a period of probation. The High Court of Justice has decided that "there is no appeal from this judgment and sentence, if these have followed proper inquiry, and in the absence of malice."

The meaning and scope of this statutory verdict of the Council, *viz*, "guilty of infamous conduct in a professional respect" was defined in 1892 in the Court of Appeal in the following terms—

"If it is shown that a medical man, in the pursuit of his profession, has done something with regard to it which would be reasonably regarded as disgraceful or dishonourable by his professional brethren of good repute and competency then it is open to the Council to say that he has been guilty of 'infamous conduct in a professional respect'."

The Council is, therefore, in medical matters a court of discipline and conduct.

In this capacity (writes Glaister) the Council has had to enlarge the venue of matters which ought to be included within the term "infamous conduct."

In 1889 the Council strongly disapproved of practitioners joining Medical Aid Associations and of canvassing and advertising for the purpose of procuring patients.

In 1905 they further denounced the practice of issuing advertisements or the use of agents for procuring patients.

In 1897 they denounced the use of unqualified assistants and the practice of "covering."

In 1911 they called attention to the Medical Act Section on certificates, and notified that the giving of an untrue, misleading, or improper certificate was to be held as "infamous conduct."

LITHOLAPAXY IN INDIA

WE publish with great pleasure the article above by Brigade-Surgeon Lieutenant-Colonel D. F. Keegan, FRCS, IMS, retired, who is well-known to the more senior members of the service as one of the pioneers of the operation of litholapaxy in India.

In the year 1900 we published a *Stone Special Number* (the first of many special numbers of the *Indian Medical Gazette*), but since that date too little has been written on the subject on the choice of operations for stone in the bladder.

Lieutenant-Colonel Keegan does well to call the attention of Civil Surgeons in India to the proved superiority of the litholapaxy operation,

and to deplore a certain tendency towards the tedious suprapubic operation and to lithotomy generally which is manifest in recent statistics of certain Provinces.

In those provinces and in Sind where Civil Surgeons have ample opportunities of becoming expert at stone operations, we should expect that litholapaxy should long ere this have been established in an even greater degree as the operation of election.

It is true that a man's student experience in England will teach him little about stone, and it is a fact that practice is necessary to become an expert litholapaxist of the calibre of Keegan, P. J. Freyer, Keith, Stevenson, Henderson, J. A. Cunningham among those that have left India, but in the United Provinces and in the Punjab such experience can be got.

We are entirely of Keegan's opinion that young Civil Surgeons destined to practice in those provinces should undergo a period of preliminary training in one of the many hospitals celebrated for stone cases.

We commend Brigade-Surgeon Keegan's paper to the attention of Administrative Medical Officers and to Civil Surgeons.

SANITATION IN ASSAM

MAJOR T. C. McCOMBIE YOUNG, I.M.S., the Deputy Sanitary Commissioner for Assam, has issued a very useful pamphlet to lay before the public the Government policy in regard to sanitation, with the object of enlisting the sympathetic co-operation of the community for whose benefit the sanitary measures are intended.

When we consider the great agricultural and commercial possibilities of Assam it is obvious that an active health policy is needed to rescue the province from a reputation of unhealthiness and to encourage immigration from the more crowded districts of India.

Malaria is a prolific source of illness and inefficiency, though Assam does not suffer from the devastating epidemics of malaria which at intervals attack dry countries like the Punjab and United Provinces. Malaria in Assam is more severe in the jungle clad countries at the foot of the hills, in Sylhet and in the cultivated areas of lower and middle Assam. Valley malaria is much less prevalent. In the upper tea districts it is rife, but these districts are largely controlled by an educated European community and are thus favourably circumstanced for any anti-malarial measures.

Major Young then points out the extreme value of spreading the use of quinine specially in the form of tubes or tablets (treatments). He points out the fact that quinine only cures malarial fevers and is of little or no use in other febrile complaints, moreover the amount of

quinine taken is often quite insufficient. He also points out the absurdity of the view which considers that quinine leads to impotency.

Plague has fortunately been absent from Assam, pneumonic cases have been imported and might easily lead to epidemic spread, but the more common bubonic type has never been propagated.

Kala-azar is a formidable disease only too well-known in several districts in Assam, and a careful survey of its prevalence has been made, and six well equipped travelling dispensaries have been organised to combat and watch the disease. Experience has certainly shown that by shifting an infected family, by simple disinfection of clothes and bedding, and by isolating the sick the spread of the disease can certainly be checked.

As owing to its sparse population the industries of Assam must be supported by a constant stream of immigrants, it is therefore absolutely necessary that sickly and diseased persons should be kept out, and that this immigrant traffic should be supervised by the Sanitary Department. On this point Major Young writes —

"Last year nearly 54,000 labour immigrants passed along the various routes of travel to the tea districts and only 19 lives were lost *en route* by disease. A complete and efficient system of control exists which was framed under the Assam Labour and Emigration Act VI, and although a considerable modification of this Act is now taking place, the arrangements by which this supervision over labour immigrants is exercised will still be maintained.

Throughout the journey from Goalundo to their ultimate destination on the tea estates, the Sanitary Department supervises the arrangements by which these travellers are tended. They are clothed and fed on a liberal scale, an irreducible minimum of accommodation by rail or by steamer is prescribed, and hospitals and shelters exist all along the routes on which the sick are tended and the healthy are housed. A European Medical Officer of the Sanitary Department devotes his sole time to the supervision of these arrangements, the provisions of which are in active operation."

The pamphlet has also some useful and practical remarks on municipal sanitation. Water-supply is of vital importance, and so is drainage.

The conservancy department in most municipalities is in great need of improvement, and it is satisfactory to know that all municipal towns are being provided with Government Sanitary Inspectors.

Rural sanitation is not being neglected, liberal contributions are made by Government to local bodies. Type plans for wells and tanks have been prepared.

We are glad to learn that vaccination is slowly and surely spreading, no greater sanitary boon has ever been introduced into India than vaccination. It is for the educated classes to lead and show the way.

Major Young's pamphlet is undoubtedly useful, and we hope it will be widely circulated among all classes of the community.

RASHES DUE TO MANGO EATING

IN India it is a common belief that boils and other skin troubles are connected in some way with the eating of mangoes, that delightful fruit which is largely consumed in this country from April till August.

It appears from two papers in *The Philippine Journal of Science* (Vol IX, sec B, No 6) that in the Philippines a similar connection is popularly held to be a fact. It has been long known that transient skin rashes, mostly of an urticarial type, are associated with the eating of strawberries, certain crustaceans, and oysters. Prickly heat, too, is aggravated in certain individuals by eating mangoes, and relief is obtained when mangoes are eliminated from the dietary.

Dr R B Gibson and Miss Isabella Concepcion have worked at this subject in the Medical College of the Philippine University.

Dr Gibson's investigation was carried out to obtain experimental evidence as to whether or not the mango is to be classed with such rash producing substances as mollusks, etc., which Heidenhain has designated lymphagogues of the first class.

Lymphagogues of the first class include peptone, albumen, extracts of liver and intestine, and especially extracts of crustaceans, mollusks, and leeches. "The physiological effects are—a marked fall in blood-pressure, an increased flow of lymph richer in solids than the normal, an inhibition of the clotting power of the blood, anuria, and increased secretory action of the pancreas salivary glands and liver."

Mango pulp has the following composition —

| | |
|-------------------------|---------------|
| Water | 82.8 per cent |
| Solids | 17.2 " |
| Sugar (as invert sugar) | 13.24 " |
| Acid (as citric acid) | 0.18 " |
| Protein | 0.22 " |
| Crude fibre | 2.6 " |
| Ash | 0.45 " |

It has also been said that nursing children are affected by mangoes eaten by the mother, and Miss Concepcion made experiments on nursing mothers in the Philippine General Hospital.

The rashes observed on the mothers after mango eating were of a papulovesical type. The rashes were more or less persistent and accompanied by marked itching, and often appear in patches. They were rather erythematous than urticarial, and especially developed on the mammary regions, neck, and the extensor surfaces of the upper extremities. The babies suffered from similar rashes.

We are not aware of any similar experiments made in India, but the subject is one of general interest and worthy of further investigation. It must be remembered, however, that skin irritations, boils, and prickly heat are extremely

common in the hot weather, and it is known that boiled onions are very useful additions to the dietary of persons suffering from hot weather boils

THE COMMUNICABILITY OF LEPROSY

In *The Annals of Tropical Medicine and Parasitology* [dated March 18th, 1915 (No 1, Vol IX)], Dr H Bayon, the Research Bacteriologist at Robben Island, had a most complete and up-to-date study of leprosy which is commended to the attention of our readers. We cannot attempt to summarise the 12 chapters and 80 pages of this most valuable monograph, but we quote the following extracts which are of considerable practical importance —

"Exact and repeated observations carried out during the last thirty years have definitely proved that leprosy is an infectious or communicable disease. The 'wisdom of centuries,' to quote Sambon's expression, had never doubted this fact. It is only due to superficial clinical observers of the XIX century that hereditary and other irrelevant factors have lately been at all considered, even for a short time, in connection with the disease.

The statement is often made that nothing is known about the way in which leprosy is communicated from the diseased to the healthy, but, as a matter of fact, the question has been carefully studied and the results are quite as definite, if not more so, than any obtained in many other infectious complaints, such as measles or scarlet fever.

Our knowledge of the contagiousness of leprosy is founded on the following observations —

(1) That it is a disease due to a definite specific micro-organism which has only been found in lepers, their excreta or immediate surroundings

(2) That in Northern Germany, where leprosy had been re-introduced from Russia in modern times, it was seen to have spread very slowly and concentrically around the first imported cases and their contacts

(3) That on the Island of Oesel, the population of which had practically remained stationary during the last fifty-five years, Lohk, Talwik, and Dehno were able to show that out of sixty-three cases of leprosy only in eight could previous contact with lepers not be traced

(4) That with one exception (Da Costa) all cases, in which contact cannot be proved, originate in countries or districts where leprosy is fairly common but that in the relatively rare instances where leprosy has been contracted in countries in which the disease is not indigenous, such as the United Kingdom, Southern Germany, Holland, it is possible to prove the intimate contact with other lepers, who in their turn had contracted the disease abroad

(5) In countries where leprosy is rare, such as the Valais, the Riviera, Alpes Maritimes, the disease is always found to definite foci or families

(6) That the countries which have carried out a thorough and efficient system of segregation have been rewarded by a gradual and constant diminution of the disease (Norway, Iceland, Germany, Sandwich Islands, Philippine Islands)

(7) That where segregation has been abandoned, or loosely carried out, or not enforced at all the scourge has usually attacked an ever-increasing number of individuals (India, Buitoland, Dutch Indies)

The grounds on which the contagiousness is denied are I believe the following —

(1) That medical men and attendants never contract the disease in leper asylums

This statement is not quite correct. Infection under these circumstances is not frequent, but still several cases can be brought forward showing that attendants and medical men do contract the disease. In South Africa the Medical Superintendent of a Leper Asylum contracted leprosy. Further instances of professional infection have been published by Ehlers, Vidal, Jeanselme, Nicolas, and others.

In one case of which I know, a missionary to lepers, trusting no doubt to the low degree of infectivity of the disease, allowed his little girl to play with leper children. She developed the malady whilst at school in Europe.

Published and unpublished cases of infection among religious persons who have attended lepers are also known to exist. (Three priests at Molokai, Father Bogholt in New Orleans, two nuns, a missionary, a lady missionary)

On similar grounds it has been attempted to deny the infectiousness of tuberculosis, the deduction being based on statistics showing the low ratio of marital and professional infection.

(2) Because the disease cannot be transmitted to animals, and inoculation experiments on human beings have failed

This also is not quite correct. The first part of this argument would have allowed us fifteen years ago to deny the contagiousness of syphilis. As a matter of fact leprosy is transmissible to laboratory animals such as the rabbit or rat as repeated experiments have shown. That this possibility is not more generally recognised is due to the fact that the lesions may be localised and fail to develop at all in a very great proportion of experiments, and often resembles tuberculosis to a certain extent.

As to the inoculations which Danielssen, Profeta, Cagnina, Bargilli carried out on themselves and others, the results, it is true, were negative, but in view of the knowledge we have lately acquired of the bionomics of the leprosy micro-organism, they have only proved that experimental inoculation with small quantities of leprosy material is incapable of producing the disease in the human being in every case.

In Arning's well-known case of the convict Keanu who was pardoned on condition he allowed himself to be inoculated with leprosy, the disease did develop, but the experiment is somewhat spoiled by the fact that the man had lepers among his relatives and was in contact with them before and after inoculation.

(3) That in Norway leprosy diminished considerably in the course of sixty years, but that only about a quarter of the lepers were ever segregated at one time.

This is not quite correct. It is true that only a small proportion of all the lepers known to exist were placed under strict segregation, that is, in special asylums, but these were the cases unable, incapable, or unwilling to carry out segregation at home. All the rest were avoiding at home all contact with their relations, etc., under medical supervision. In this sense the system was one of efficient universal segregation.

A further similar argument, often brought forward by non-contagionists, is that leprosy disappeared in the Middle Ages from England, France, Germany, etc., without strict measures of segregation having been resorted to.

It appears to me that the measures adopted to prevent the spread of the disease were extremely severe. Lepers were not allowed into churches or market places, had to carry a distinctive dress, and had to make their presence known by a bell or clapper. In a few words the intimate contact between the healthy and the diseased, which gives rise to the most favourable

conditions for transmission, was most radically avoided. I also believe that plague directly and indirectly swept away a great proportion of the leper population, as they were feeble, and during times of epidemics and commotion would receive no alms. This observation has been confirmed to a certain extent in India in modern times.

It will be seen that non-contagionist arguments are founded mostly on negative evidence. Positive figures bearing on the contagiousness of leprosy are available from Norway, Japan, and the Sandwich Islands, and they unanimously point to the same moral.

Kitasato's statistics from Japan show that children of lepers become leprosy in a proportion of only 7.95 per cent of the total. Matrimonial infection was proven in 38 per cent cases, whilst persons living under the same roof contracted leprosy in a proportion of only 2.7 per cent. Brothers and sisters infect each other in a ratio of 4.2 per cent. These figures may need correcting according to the latest statistical methods. However, they roughly correspond to the experience gained in Norway where Sand and Lies' figures differ somewhat, but show that the children of a leprosy mother are more frequently infected than those whose father alone is diseased. This proves that the more intimate contact between mother and child leads to a greater percentage of acquisition of the scourge.

Sand's statistics from Norway show that in 357 married couples in which the father alone was a leper, 1,241 children were born, of which 63, equal to a proportion of 4.9 per cent, became lepers. In 138 other married couples observed, the mother only was a leper, of 533 children born of these unions 56, or 10.5 per cent developed leprosy. In 17 couples both parents were diseased, of the resulting 63 children 8, 12.7 per cent, became infected.

Lies' figures from South-Western Norway give somewhat similar results. 230 married couples in which the father only was a leper had 769 children, of which 79, or 10.2 per cent, contracted the disease. In 223 married couples the mother only was leprosy, of 648 children, 106 of these, otherwise 16.36 per cent, became lepers. In 28 instances both parents were lepers, out of 79 children 29 fell victims to leprosy, that is, 39.19 per cent.

Hollman examined carefully the conditions affecting the development of leprosy in the children of lepers at the Molokai Settlement, and came to the following conclusions:

(1) It is shown that 40 per cent of the children born of parents of whom one or both were lepers died under one year.

(2) 32 per cent of the males who were exposed ten or more years developed leprosy.

(3) 4 per cent of the females whose average time of exposure was less than five years developed leprosy.

(4) 10 per cent of the males exposed for more than seven years developed the disease.

(5) 13 per cent of the females exposed from one to seventeen years, and under observation seven or more years, became lepers.

(6) The average time of exposure of the cases which developed leprosy was five years.

Accordingly, the danger of contracting leprosy for children born of leprosy parents increases with the length of exposure.

Incidentally these investigations show that heredity does not play any important rôle in the causation of leprosy. Also, if it did, the disease would soon die out in any country.

The figures and conclusions show so clearly that contagion or infection through immediate contact is the usual mode of communication, that it appears rather far-fetched to seek an insect carrier of the scourge.

As a matter of fact, all experiments to prove this mode of transmission have so far failed, though it appears quite probable that the common house-fly can suck up the germs of the disease from open sores, carry them about for several days, and disseminate them in such a fashion.

The horrid sight of flies swarming and hovering over the purulent sores and round the nostrils of leprosy beggars is well known to the traveller in eastern countries.

Graham-Smith, having shown that house-flies can harbour the bacteria of tuberculosis for twelve days or more, it seemed probable that the micro-organism of leprosy would show an equally long permanence in the fly-intestine.

Leboeuf examined numerous specimens of *Musca domestica* caught on the sores of lepers in the wards and in houses not further than 150 metres from the hospital.

He found leprosy 'globi' in the intestines of flies captured and kept for twenty-four hours, and acid-fast rods in flies thirty-six hours after feeding. His conclusions are that:

(1) *Musca domestica* can absorb enormous numbers of Hansen's 'bacilli' by nourishing itself on sores containing these germs.

(2) The 'bacilli' can be found in abundance and, apparently, in excellent condition, in the excreta of the infected house-flies.

(3) It does not seem that multiplication takes place in the digestive tract of *Musca domestica*, but in any case there are no signs of degeneration.

(4) *Musca domestica* possibly plays an important part in the dissemination of leprosy by depositing its excrements on the mucous membranes or small abrasions of the skin of healthy people living in the immediate vicinity of lepers whose sores contain 'bacilli'.

It will be seen that in any case the fly does not do more than eventually disseminate the micro-organisms it has ingested, in a similar fashion to flies disseminating typhoid.

As far as our knowledge goes, no insect plays a real rôle of transmission in any bacterial disease. Moreover, transmission implies a more or less complicated developmental cycle in the body of the intermediate host, after which a protozoon can be inoculated by the proboscis of a biting or stinging insect. With bacteria a contaminatory communication through the faeces or by the regurgitation of the crop contents takes place. This is the case in bubonic plague or typhoid.

The fly is eminently adapted for a contaminatory or mechanical method of dissemination, but the difficulties inherent to the communication of leprosy to animals will render experimental work in this direction very difficult to accomplish.

It will be seen that the intimate personal contact, as found between a child and its mother, gives the most favourable circumstances for the acquisition of leprosy.

We know that at the present moment about twenty-five to fifty lepers or more are living in England and yet of these only one has acquired the disease in the United Kingdom (mother and father were lepers). The simple precautions these unfortunates are able to take to keep themselves separated from their families have been sufficient to prevent contagion.

As a contrast we have India, where the last census appears to show an increase of lepers in the last ten years from 100,000 to 110,000.

The modern medical eye looks, therefore, upon leprosy as a disease which is definitely contagious, but to a very slight degree under proper sanitary conditions. In situations where hygienic precautions are defective and the contact between the diseased and the healthy is unnecessarily immediate, where a leper is obliged to sleep in the same bed with other members of the family, and personal cleanliness apt to be in abeyance, the

danger of contagion is certainly present to a markedly increased extent

MEDICAL REPORT, NORTH BORNEO.

DR W B ORME, the P M O, submits a very interesting report on medical and sanitary matters in the territory of North Borneo from which we make the following extracts —

"*Millions Minnows*," and *Breeding Places*—The Honourable S Sawrey Cookson has very kindly called our attention to the question of the advisability of introducing small fish, belonging to the family Cyprinodontidae. These millions (*Girardinus Poeciloides*) are the small fish of Barbadoes, said to eat mosquito larvæ readily, on which the salubrity of Barbadoes is thought to depend. I would point out, however, that our local anophelines breed often in small collections of water, such as may be left in the track of cattle walking over marshy ground, and how we could stock such places with fish it is difficult to see. Moreover, an anophelino breeds in the very shallowest water, whereas the million fish will require a considerable depth, in fact the anopheline stands to the million in much the same relation in respect to draught, as a Destroyer to a battleship. In this connection I cannot do better than quote Dr Malcolm Watson (an authority on malaria), who has recently paid a visit to Barbadoes. He says—"As regards Barbadoes, the absence of malaria is not due to the millions. It is to the absence of breeding places. I drove some fifty miles along the coast, and could only find two pools. The country is porous being of coral limestone and there are not even rivers. The rivers marked on the map exist only at the time of a tropical rain storm, and dry immediately after. It is important the million theory should be exploded. They have been imported to many countries with high hopes, which I am afraid will not be realised." At Jesselton the breeding places have not yet been located, but they probably occur along the hill foot, practically the whole length of the town.

Prophylaxis and Treatment—For Urban situations anopheline reduction, by means of general sanitation, and good surface drainage, must be the sheet anchor, I will not serve up a rechauffé of Ross's valuable work, for it is too well known to require insistence from me. For the rural districts such methods are out of the questions and we must look to other means. A great deal has been written in favour of oiling, with kerosene, the surface of all collections of water in the neighbourhood of kampongs. The method, however, is expensive on account of the supervision required, for without strict control it is open to speculation, the kerosene illuminating the kampong with a galaxy of light, instead of asphyxiating the anopheline larvæ as is the intention.

Cinchonisation of Children with enlarged Spleen—This method of treating malaria, by parasite reduction, was originally introduced by Dr W T Prout, C M C (late Principal Medical Officer, Sierra Leone). I would draw particular attention to the fact that this is not only a method of treatment for the particular individual, but is also a means for protecting the sufferer's neighbours since having taken the drug, and freed his blood from the parasite thereby, he is not the possible source of infection to his fellow-men that he was before. During the latter part of the year I drew up a leaflet on "Malarial Prevention and Cure" for the guidance of District Officers and others. It is quite clearly explained therein that the necessary drugs (quinine capsules, calomel, salts, etc.) will be supplied free on application. These leaflets have been widely distributed to District Officers and Schoolmasters and I am glad to say the latter are

already taking a keen interest in the work. If we are able to gain the whole-hearted co-operation of the District Officers an enormous benefit will undoubtedly accrue. One of these malarial leaflets will be found attached to this report.

It is probably better not to employ this method unless one lives in an intensely malarial district. When employed 4 grains of quinine should be taken daily, and 8 grains (*viz.*,—a double dose) once a week in order that this may not be forgotten take the double dose on each Sunday.

CURE OF MALARIA BY QUININE

Having decided that malaria is present, either acute with fever, or chronic with pallor, wasting, and large spleen, a vigorous course of treatment must be followed. Treating the case for a few days until the fever and other symptoms may have disappeared is not sufficient, for the patient will not only probably have a relapse but be a grave source of danger to those about him. The germ will be dormant in the system but not dead, and the patient will in probability infect others by himself infecting anopheles mosquitoes, which in their turn bite other healthy people.

TREATMENT OF THE CASE, THE DOSE AND HOW LONG TO GIVE IT

Always start by giving a purge, preferably Calomel and Salts. Give 3 grains of Calomel at night and 6 teaspoonfuls of Epsom Salt dissolved in half a tumbler of water early the following morning. The first dose of Quinine (in the case of an adult, 8 grains in capsule) should be given one hour after the Calomel. Do not wait till the morning before beginning the Quinine treatment for you might possibly by then find the patient unconscious and unable to swallow, a state of affair somewhat hopeless in the absence of intramuscular or intravenous medication, a line of treatment which the un instructed should not attempt. Continue the 8 grains capsule 3 times daily for a fortnight and twice daily for another six weeks. It may seem preposterous to continue to give a Quinine in such large doses for several weeks after the fever has disappeared, but if one wants to prevent relapses and free the patient's blood from the germ once for all this is the proper and necessary course to take. For children between the ages of 6 and 14 years give 4-grain capsules and for those under that age open one of the small capsules and divide into four equal parts of 1 grain each. Never give less than 1 grain to the smallest baby. A child of 3 years may take 2 grains at each dose with safety.

On the subject of BERI-BERI the following note is of considerable interest —

"Of the seventy-six cases admitted to Sandakan Hospital no less than forty-two came from the timber camp of Messrs Kim Eng Watt (at Malanking and Sekong River), another five of this number hailed from the camp of Messrs Man Woo Loong on the Kinabatangan. On November 18th, I proceeded to a timber camp at Sungai Kiatum Kechil to investigate five deaths which had occurred between October 17th and November 16th at the camp of the North Borneo Trading Co. These deaths were without doubt due to fulminating Beri-beri, five men actually suffering from the disease were also found at the camp on my visit. A report of this outbreak was forwarded to Government at the time and my conclusion stated, *viz.*, that the outbreak was due to the absence of fresh vegetables, the coolies using white rice as a staple, with no addition other than fish. If further evidence was required that white rice plus the absence of sufficient fresh vegetables is the cause of Beri-beri we have the unfortunate occurrence of an outbreak of the disease at our Lepel Settlement, to which I have

referred at length on another page. We must undoubtedly endeavour to persuade all who employ cool labour to supply parboiled rice and fresh vegetables as far as is possible, but it is very doubtful if sumptuary legislative measures should be introduced. I notice Dr Henry Fraser in his report (Institute of Medical Research F. M. S. for the year 1912) has a warning paragraph on 'undue haste in the application of the results of scientific research'."

FRACTURES OF THE FEMUR

DR JOHN B. WALKER, Surgeon of the Bellevue Hospital, New York, has recently had a valuable article on "*Femur Fractures Statistics of End-Results*" in the American Journal of Surgery, a subject which recent legislation and Workmen's Compensation Acts has made of increased importance. In 1913 in the United States compensation was paid to the amount of 1,22,000 dollars for 90,000 days of disability and fractures which constituted only 10 per cent of the total injuries received no less than 27 per cent of the total compensation. Fracture of the femur occurs in about 10 per cent of all fractures, and offers the greatest difficulties in treatment and most seriously incapacitates the workman.

According to Von Bergmann the average period of disability in 121 cases was over 1 year (54 weeks). In 179 cases reported by the British Fracture Committee the average was 33 weeks.

Dr Walker writes as follows —

"Great improvement, will surely follow if treatment truly intelligent, prompt, and efficient be employed, the most important factor being that it must be efficient from the very first and there must be no delay.

(1) *Reduction* must be thorough, and in the larger number of patients *anæsthesia* will be required.

If seen early enough, end-to-end apposition should be secured in many of the transverse and oblique fractures. Formerly it was supposed that spiral fractures of the femur were the most frequent, but analysis of the radiograms of 100 femurs showed 32 spiral, 50 oblique, and 18 transverse.

(2) *Traction* Immediately after reduction a sufficient amount of traction must be applied and maintained long enough to secure correct fixation of fragments. Generally it is too small and frequently it becomes intermittent and irregular, so that often angulation occurs, even after the first radiogram has shown the fragments in good alignment. The muscles subsequently contract and produce too much movement of the fragment with overriding and shortening.

Traction, to be efficient, must be powerful enough and the force must be applied in the right normal direction to overcome the pull of all the opposing muscles. Shortening is thus obliterated and correct alignment is secured.

In fractures of the femur, especially of the shaft, traction that maintains correct alignment will also at the same time secure good anatomical position. This corroborates the findings of the British Fracture Committee—that where the anatomical result is good, then the functional result is good in 90.7 per cent, but that when the anatomical result is moderate or bad, then a good functional result occurs in only 29.7 per cent.

Bad results are nearly always associated with angulation and are largely due to that cause. This is conclu-

sively demonstrated by the study of any large series of radiograms. Angulation results from ineffectual traction.

In children, traction is much more easily applied and far better maintained, the muscles are less resistant, the weights smaller, the child is lighter and smaller and more easily lifted into correct position by one nurse or attendant house officer, consequently normal alignment is more often maintained. These facts largely explain why the results are far better in children than in adults where traction is far more difficult to maintain.

Under 15 years of age, in 1,016 cases, good functional results were obtained in 90.8 per cent.

Over 15 years of age, in 1,580 cases, good functional results were obtained in only 45.4 per cent.

Radiograms must be systematically employed in all cases of fracture of the femur to control the results of reduction. While some may be misleading, yet when made by a qualified operator, they furnish the best records of the relative position of the fragments and they give invaluable assistance in showing how unsatisfactory results may be improved.

In this connection I believe the time will come when metropolitan hospitals will become so organized that fractures will be assigned to especially equipped wards under the care of surgeons who are particularly interested in the treatment of fractures.

Further, I believe it would be most advisable, both for the future welfare of the patient and also for the economy of employers, that they should require that all fracture cases be sent to hospitals having X-ray equipments and extension apparatus and where skilled surgeons should treat them, rather than the company surgeons in their own homes.

(4) *Consolidation* This period is subject to considerable variation, for the academic period stated in textbooks cannot be depended upon, as experience proves that quite a percentage require additional time for complete consolidation.

It therefore happens that when the body weight is carried too early on the recovering femur, bending begins, and if continued, marked angulation and deformity occur.

(5) *Operation* Recently sufficient evidence has been presented to definitely recommend operations by skilled hands for fractures of the femur in the cases where reduction is inadequate. Adequate reduction requires that the ends remain in apposition without obvious angulation or axial rotation, and that the shortening be not greater than $\frac{1}{2}$ inch.

Many surgeons who have had special experience in the treatment of fractures have learned to consider that certain kinds of fractures presenting characteristic radiographic evidence are best treated by operation. In these selected cases after the clinical diagnosis has been confirmed by a radiogram, then the decision is made to operate at once, for here, as elsewhere, operative methods to be successful must be efficient from the first.

'If a surgeon is doubtful whether he can treat a fracture efficiently by a non-operative method, he ought to consider whether he cannot do better by operating at once. He ought not to say, "We can see what becomes of it and if it is not satisfactory we can operate later," for by so doing the opportunity of getting a good functional result may be irrevocably lost.'

The British Fracture Committee reported that when operation was too long delayed the prospects for good results were sacrificed.

In 147 cases in which primary operation was decided upon, good function was secured in 80 per cent. In 78 cases in which operation was resorted to only secondarily after failure of other treatment, good function was secured in only 60 per cent. In 83 cases in which

operation was performed still later on account of malunion, good function followed in only 38 per cent

The above statistics are corroborated by a series of 37 cases of fracture of the femur collected by the writer

In 10 cases of primary operation, good function, resulted in 80 per cent whereas in 27 cases of secondary operation, good function was secured in only 60 per cent. However, the average of good functional results obtained by these operations was 65 per cent, much in contrast with the 42 per cent obtained by non-operative methods in the cases collected by the British Fracture Committee

THE Director-General has circulated the following notice which will be of considerable interest to I M S Officers wishing to qualify for "accelerated" promotion —

"GOVERNMENT OF INDIA, ARMY DEPARTMENT,
NOTIFICATION No 1173, DATED DELHI, THE
24TH DECEMBER, 1914

With the approval of the Most Hon'ble the Secretary of State for India, the Governor-General in Council is pleased to notify (with reference to the notifications noted in the margin) that the following technical courses of study in India, shall, when undergone by officers of the Indian Medical Service be regarded, to the extent noted against each, as 'study qualifying for accelerated promotion to the rank of Major, provided that the officers pass 'with proficiency' the examinations held at their conclusion —

- 1 X-ray course, Dehra Dun—3 months
- 2 Short bacteriological course at Kasauli—1 month
- 3 Malarial course at the Malarial Bureau—1 month
- 4 Long bacteriological course at Kasauli, according to the duration of the course—3 to 6 months"

"Examination in connection with the short bacteriological course at Kasauli will be held at the Central Research Institute at the termination of the classes which are held annually in the months of May, June, July, and August, respectively

The examination will be mainly, if not entirely a practical one, dealing with the technique taught at the class

2 The examination in connection with the malarial course will be held at the Malarial Laboratory, Delhi, at the end of the spring and autumn course, respectively

The examination will be a practical one, marks being given for the survey work which forms part of the course

3 In the case of the long bacteriological course at Kasauli, the officer will ordinarily undertake some piece of research work, in the carrying out of which he will be required to shew application and ability. When actual research has not been undertaken, an examination in bacteriological or protozoological technique will be held at the end of the period of deputation"

WE think Government has reason to congratulate itself on the way the mobilization of the civil side of the Indian Medical Service in the great war has been effected with the minimum of disturbance. It is a tribute to the excellent work of civil surgeons and other I M S Officers in civil medical employ that their work is proceeding on such sound lines, and we hope they will soon be

able to take it up again and find little or no harm done in their absence. From all sides we hear of the efficiency and of the high surgical and medical skill of our men at the front. The Government of India may be well pleased, the I M S has stood the greatest strain ever borne since it was established 151 years ago, and has provided a highly skilled band of surgeons and physicians for the armies in the field. After all where could, except in the civil side of the I M S, medical officers receive the professional training necessary? We have here men with a sufficient knowledge of military methods, combined with very considerable practical knowledge of surgery, of medicine, public health and administration. No wonder these men have done well. No other medical service of any army in the world can provide such professional training

Reviews.

Volcanic Action and Disease.—By H J JOHNSTON-LAVIS, M D, &c London John Bale Sons & Danielssen Price, 3/-

THIS essay obtained the Parkin Price of £100 of the Royal College of Physicians. It is written by Dr Johnston-Lavis, who describes himself as a late Professor of Vulcanology in Naples University, and his experience of volcanoes, living in the neighbourhood of Vesuvius is considerable.

Many ills have from time immemorial been attributed to volcanic action, but the eternal fallacy of *post hoc propter hoc* is present and vitiates many stories.

Volcanic matter consists of a mixture of solids, liquids and gases, the matter being largely oxides and silicates in a state of gassy fusion. It is calculated that the extremely fine particles of pumice erupted from Cotopaxi are so light that for 4 to 25 thousand are required to weight one gram.

Of course life is easily destroyed by a lava stream and heated air and instant vapours etc., but these can only affect those living within a certain distance from the volcano.

In Chapter IV Dr Lavis quotes many others who have connection volcanic eruptions with outbreaks of disease, and older authors refer to "mortific pestilences" following on eruptions.

We cannot say we have been much impressed with the array of quotations from many authors quoted by the author. We admit the directly fatal effects of volcanoes, there also are several indirect ways in which epidemic disease has been caused or accelerated by volcanic eruptions, Dr Johnston-Lavis mentions the following —

- 1 Irritant effect of poisonous or erosive fumes on the mucous membranes and air passages, &c
- 2 Disturbance of watercourse may lead to disorganisation of drainage and sewers, &c

3 Moral depression from fear, scarcity or famine due to destruction of food

We may not agree with much in this book, but it is certainly interesting

Aids to Forensic Medicine and Toxicology — By MURRELL and ROBERTSON London 8th Edition Baillière, Tindall and Cox Price 2s 6d, cloth

DR ROBERTSON here brings out the 8th edition of the work of the late Dr Wm Murrell, whose name on this subject was enough to make the fame of any book. The present edition has been rearranged and brought up to date. It is a concise and accurate compilation of an important subject and should be invaluable to students for examination purpose.

Local Anæsthesia.—By CARROLL W ALLEN Octavo pp 625, with 255 Illustrations Publishers T B Saunders & Co (Philadelphia and London)

THE work is the outcome of the work Professor Rudolf Matas of Tulane University, Louisiana, U S A, where for many years the substitution of local in lieu of general anæsthesia, when possible, has been laboriously studied and practised. Professor Matas had hoped to collaborate with the author, but being prevented has contributed an introduction.

The book is designed to survey the certain field of local anæsthesia, and to remove the reproach that no work of a similar character exists in English surgical literature. The author is to be congratulated on the success he has achieved in this laborious task. He quotes from and freely acknowledges the assistance he has received from many pioneers in the subject, and the result is a truly encyclopædic account of the technique and result of local anæsthesia in all its applications. The earlier chapters are occupied with preliminary matter and the descriptions of various agents. The next to methods and regional anatomy. Spinal analgesia, paravertebral, dental, aurial and ophthalmic anæsthesia are considered in the closing chapter. The whole is a monumental record of industry and research. A book of this character is primarily designed for reference, and we recommend it to all libraries and teaching institutions, though individual surgeons will also find it a useful possession. The publishers, Messrs J B Saunders & Co, have contributed their share to the successes of the volume. It is beautifully got up, printed in large type and has an excellent index.

Abdominal Operations —By Sir BERKELEY MOYNIHAN, 3rd Edition, 1914 2 Vols Octavo, pp 488 and 492 with IX Plates, and 371 Illustrations in the text. Published by W B Saunders & Co (Philadelphia and London)

AFTER a lapse of eight years, a fresh edition of this important work will be welcomed by all

surgeons in this country. Considerable revision has been found necessary and certain chapters have been entirely rewritten. The author adheres to his original purpose in describing in detail only those operations and methods which are practised by himself. No gynecological operations are described, nor are operations on the kidney and bladder or for hernia. Detailed references to mechanical appliances for intestinal anastomosis are also deliberately omitted from this as from previous editions, the distinguished authors believing that their interest is only historical.

The subject-matter is divided into five sections and fifty-one chapters, and by this arrangement the readiest reference is afforded to any detail of operative treatment or procedure. The first section deals with general considerations, and includes amongst other headings, the preparation for and conduct of abdominal operations, complications, incisions and penetrating wounds, the surgical treatment of peritonitis, subphrenic abscess and visceral prolapse. The second section is devoted to operations on the stomach, jejunostomy and gunshot wounds.

The third section to operations upon the intestines, including the appendix. The fourth section to operations on the liver including the gall-bladder and biliary ducts. The fifth and last section embraces operations upon the pancreas and spleen. The whole is an authoritative and detailed description of operative surgery on the abdominal organs.

Reverting to details, it is interesting to note that the author has for some years discarded McBurney's "muscle-splitting" incision for "interval" cases of appendicitis, in favour of Battle's incision through the sheath of the rectus. In appendix abscess he lays stress on cutting down over the most prominent point, and in draining the cavity at its most dependant spot, with regard to the hotly debated question of the search for and removal of the appendix in cases of abscess formation, his practice is only to remove it, if it presents at once or after the simplest examination. His conclusion is that "in many cases removal is unnecessary and in almost all involves far too much risk to be desirable." The probability of a recurrent attack after drainage he places at approximately 10 per cent, of which number "a secondary operation will be needed in perhaps the majority, but it can be performed in the quiet interval after an attack and the risk is accordingly small." Such direct and lucid teaching characterizes the whole work.

The chapter on the treatment of hepatic abscess is disappointing and behind the times. The author describes the methods relied on by Manson and Cantlie. Therapeutic aspiration is not mentioned. It is no disparagement to these names to say that the more recent experience and results of Anglo-Indian surgeons, as embodied, for instance, in the

special number of the *I M Gazette*, might well have been included

For the printing, plates and illustrations we have nothing but unstinted praise. The type is bold and clear and a pleasure to read, the illustrations are both good and well arranged and the plates are admirably executed. These handsome volumes, are yet another fine example of the publishers' art, fully in keeping with the reputation of the firm of W B Saunders & Co. No surgeon's library will be complete without a copy.

Episcopal Hospital Reports, Philadelphia, Vol II

THIS volume constitutes a report for the year 1913 covering over 5,000 in-patients, and 30,000 out-patients, and containing a number of useful papers, covering a wide range, in every department of medicine and surgery. None of these need be specially mentioned. The illustrations are excellent, and include a number of X-ray plates of great interest. The hospital is obviously to be congratulated both on its Board of Managers and on its medical staff.

Anoci-Association.—By GEORGE W CRILE, M.D., and WILLIAM E LOWER, M.D. Edited by AMY F ROWLAND, Philadelphia and London. W. B Saunders & Co. Pp 259. Price 13s.

Of all the recent advances in surgery, probably none has aroused more general interest than Crile's kinetic theory of shock and his *anoci-association* technique, which aims at the attainment of the shockless operation. In this book Crile sets out his theory, with the experimental evidence on which it is based and describes the general principles of his technique and their application to particular operations.

In the introductory chapter the author defines the position which he reached in 1897, as the result of his experimental investigations, that shock was the result of exhaustion, the most vital phenomenon accompanying which was low blood pressure. He reviews his subsequent work and shows how he was led to the conclusions on which he based his kinetic theory of shock.

In Part I the theory is explained and the evidence on which it is based is adduced. Every adequate stimulus awakens an *association*, either a *bene-association* or *anoci-association* and the constant effort of the race and the individual is to increase the former and diminish the latter—to reach a state of *anoci-association*. Primitive man in common with most animals had two methods of self-defence—he fought or he ran away. Hence the presence or even the thought of danger occasions discharges of energy by the motor mechanism in particular, and these discharges, when intense enough or protracted enough produce the extreme conditions called "exhaustion" and "shock". The essential lesions of shock are in the cells of the brain, the

suprarenals and the liver and are caused by the conversion of potential energy into kinetic energy at the expense of certain chemical compounds stored in these cells. A series of beautiful plates illustrate the histological changes produced in these organs by various shock-producing agencies—a preliminary stage of hyperchromatism followed by chromatolysis and signs of exhaustion. When trauma was limited to areas disconnected from the brain by severing the spinal cord or by local nerve blocking, the brain cells showed no changes. When the vitality had been previously reduced by emotion, physical exertion, toxæmia or other cause, greater changes were found after equal trauma. Inhalation anæsthetics *per se* produced no brain-cell changes, but the choice of anæsthetic determined the extent to which the cells suffered from the effects of trauma, all these changes being less marked under nitrous-oxide-oxygen than under ether. That the changes in shock were not due to any alteration in the composition of the blood was shown by cross-circulation experiments on dogs. The comparative shock-producing effects of variations in the type of trauma and the part of the body affected are explained on the kinetic theory.

In Part II we pass to the prevention and treatment of shock. The points in prevention are—A pre-operative environment calculated to allay fear and inspire confidence, the dulling of the nerves by the administrations of morphine with scopolamine before the operation, a non-suffocating odourless anæsthetic (the author prefers nitrous-oxide-oxygen), the infiltration of every sensitive tissue with 1-400 novocain previous to division, the injection of quinine and urea hydrochloride $\frac{1}{2}$ - $\frac{1}{2}$ % at a distance from the wound to minimise post-operative discomfort, gentle manipulation, sharp dissection and the minimum of tissue trauma. In treatment the indications are—(1) The prevention of further shock by the amelioration or elimination of the conditions which produced it, on the lines indicated above, (2) the support of the circulation by direct transfusion of blood. The succeeding chapters deal with the application of these principles to various classes of operations and indicate where modifications of procedure are desirable.

This book marks a most important advance in surgical technique and we recommend a perusal of it to all who do much abdominal work, though we fear that the complete technique is too elaborate for this country.

Dispensary Treatment of Pulmonary Tuberculosis—By DR HILDA CLARK. Publishers Messrs Bailhere, Tindall and Cox, 8, Henrietta Street, Covent Garden, London. Price 15s net.

THIS work is a study made, by Dr Hilda Clark in order to ascertain what evidence there is to

substantiate the claim that in the use of tuberculin on a large scale there is at hand a preventive remedy against the onset and spread of pulmonary tuberculosis by virtue of the curative value of tuberculin in early cases. The evidence offered was that obtained in the tuberculin dispensaries of Street (Somerset) and Portsmouth 636 cases treated with tuberculin come under review and are analysed in much detail as also many cases tested by tuberculin. The question as to the dangerousness *in skilled hands* of either use of tuberculin appears satisfactorily answered in the negative. The value in treatment is recognized as being difficult of proof in the absence of a similar series of cases not so treated. However, to any one especially interested in the subject and with a fair knowledge of the general course of the disease, the evidence would appear to clearly demonstrate its value in a large proportion of the cases, even though practically all appear to have been of a febrile character or nearly rendered so by a short period of rest. At Portsmouth, where most of the work was done, 77% of those requiring treatment were treated with tuberculin. Granting the proof of the curative value of tuberculin, especially in early cases, its position in prevention of the spread of the disease in the community is evident. The use of tuberculin as a test, wisely used, leads to the same end. Dr Clark considers all this well demonstrated and his work shows a careful and level-headed study of the subject and is well worthy of the close attention of all interested in the problem. Other sections deal with the methods used in the test and treatment. The latter is by the intensive method, often with marked reactions, made well known through the strenuous writings of Camac Wilkinson, its essentials are well described. The part that the tuberculin dispensary may play in relation to general education and hygienic measures is pointed out and also its relation to the sanatorium. The only drawback we find in the book is the rather confusing divisions into which the cases are divided. We would repeat that this book represents careful first hand study of a big problem worthy of all attention. The application of the measures analysed have the value of being practicable at a cost which is a mere mite to that of other measures advocated to combat tuberculosis and further is complementary to them.

Muter's Short Manual of Analytical Chemistry, Qualitative and Quantitative, Inorganic and Organic—Edited by J. THOMAS, B.Sc. (Lond.) Xth edition. Pages XIV and 237. Price 6/- Publishers Messrs Bailhere Tindall & Co, London, 1915

TEN English and five American editions testify to the success of Dr Muter's Manual. The book is indispensable for laboratory work and is

proved itself of the greatest assistance to students of analytical chemistry.

Only a few alterations have been made to bring the subject-matter up to present-day requirements. The general character and scope of the work remain unaltered. The excellence of this volume is so well recognised that further praise of its many good points is uncalled for.

Medical Applied Anatomy for Students and Practitioners—By T. B. JOHNSTON, M.B., Ch.B., Lecturer on Anatomy, University College, London, etc. Three full page Plates in colour and 146 Illustrations in text. Pages 436. Publishers Messrs A & C Black, Ltd, 1915.

THIS new publication is an effort on the part of the author to present the more important applications of Anatomy to the study of clinical medicine. The subject is one on which Dr Johnston has been accustomed to lecture in connection with the Post-Graduate classes at Edinburgh.

The subject has been treated according to systems and not according to regions, and should be of great value to the student and of considerable assistance to those who teach clinical medicine. The volume is very well got up and the illustrations enhance materially the value of the text. Nearly half the book is devoted to the nervous system and organs of special sense. The subject is very lucidly treated and will well repay perusal. The other systems—digestive, vascular, respiratory, genito-urinary, and ductless glands—are discussed and much accurate information concerning them brought together in a small compass. Both author and publishers may be heartily congratulated on the addition of a valuable and handsome volume to the literature of medicine.

Directions for a Practical Course in Chemical Physiology—By W. CRAMER, Ph.D., D.Sc. Second Edition. Messrs Longmans, Green & Co, London 1915.

THE first edition of this production met with very considerable success and found favour with teachers of the subject. The special features have been largely retained. The most essential addition to the present volume is a series of simple experiments on blood coagulation, dealing more particularly with the preliminary stages of the process. We have no doubt, but that student of chemical physiology will be able to derive great benefit from working through the course as outlined.

Eye, Nose, Throat and Ear—By JAMES FORREST, M.B., Ch.B. (Edin.) Henry Kimpton.

THIS volume is designed for students and practitioners and is intended to be a concise work of practical value to both. At the outset it is a

difficult ideal to attain for the student requires assistance chiefly in diagnosis and the practitioner in treatment. If adequate details of both are given the book would have become unwieldy and the result is that in places one or other branch has suffered.

Errors of refraction are amply and simply dealt with and are, indeed, the best chapters in the book. We have not read a clearer account of muscular anomalies, their diagnosis and treatment, in any book.

Colour blindness on the other hand has received very scanty reference and the author apparently regards it as belonging strictly to the realm of the specialist. He has overlooked the fact that many general practitioners have to pass an opinion on candidates for the Army, Navy and Railway services.

The various diseases of the eye and appendages are fully described with their appropriate treatment. There is little to comment on as the author follows approved lines throughout and avoids controversial points, while mentioning Smith's cataract operation he does not recommend it, which by way of advice to the non-specialist appears to us eminently sound. A little more detailed instruction as to the technique of washing out the anterior chamber would seem desirable in a book of this description. A bold statement "douche out the anterior chamber with sterile saline," leaves a good deal to the ingenuity of the individual. For glaucoma, iridectomy, Elliot's and Lagrange's operations are described in full, the preference being given to Elliot's. Injuries of the eye are rather neglected and as these form a very large proportion of the eye cases seen in general practice, they might with advantage be elaborated. An important feature of this section on the eye are the coloured illustrations. Many of these are from Heale's Atlas and in number and accuracy have not been equalled in a text-book of this size.

Roughly, one-half of the book is taken up with diseases of the eye and the remaining half, about 180 pages, is devoted to diseases of the nose, throat and ear. It is obviously impossible to do justice to these subjects in such limited space.

Taking first the section on the nose and naso-pharynx we gather that the author's experience of radiographers has been unfortunate, for he states "skiagraphy is rarely of any practical diagnostic aid in accessory sinus affections." This is a conclusion with which we do not agree. Nor does the author warn his inexperienced readers as to the grave danger of hæmorrhage in removing fibromas of the naso-pharynx.

In describing the operation for the removal of adenoids there are a number of points in the operation as described which we would venture to criticise. The cuvette in the first place, is

more easily manipulated if it is held like a pen, not in the palm of the hand. No operation for tonsils or adenoids should be undertaken until the teeth have received dental treatment, and every effort made to obtain an aseptic condition of the mouth. Finally the author's advice to use hydrogen peroxide to check hæmorrhage is, we believe, unsound and its use dangerous owing to the effervescence and thick froth that is formed. The descriptions of operations for the removal of tonsils are good and deserve careful perusal, the operation for enucleation of tonsils is rightly restricted to certain selected cases.

Turning to the section on the ear, the description of the mastoid and modified mastoid operations is too indefinite and incomplete to afford a guide. His description of the modified mastoid scarcely does justice to Heath's scrupulous attention to detail both at the operation and during the course of the after treatment. The remainder of the section covers the ground fairly completely though briefly.

The same may be said concerning the section on the larynx, though in tracheotomy our experience is that the less dissection there is, the better the wound heals and the fewer the difficulties encountered. We have entirely abandoned the method described by the author for the one so well described by Legars. There are throughout the book numerous abbreviations which should be reserved for a class note-book and not used in a manual of this description. For example we find " Chcl_3 or C and E is preferable." C & E we presume mean chloroform and ether, though as chemical symbols they stand for Carbon and Erbium. " Chcl_3 " is a constant printer's error for CHCl_3 throughout the book. Similarly Pot Iod, K I, are frequently used in the text and abbreviations of various kinds for other drugs. The nomenclature of ear diseases also seems to have presented some difficulties. Thus we find "Otitis Media Suppurativa Acuta" in one place, "Chronic Otitis Media Suppurativa" in another, and "Complications of Chronic Suppuration" in a third. While preferring the Latin to a mixture of Latin and English we confess to a preference for the plain English especially as it is in harmony with the rest of the book.

While the volume before us covers most of the ground it sets out to do, there is too much of the flavour of an amplified class note-book to make it a really popular text-book.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago—Vol. III, No. 3. W. B. Saunders Co., Philadelphia and London.

THE bulk of this number of the Clinics is occupied by cases of tenoplasty, arthroplasty, plating of fractures and bone-grafting. Dr. Murphy has some interesting remarks on non-union of fractures after perfect approximation by

plate and screws and the cause thereof. A remarkable case of excision of the head and trochanters of the femur for a metastatic carcinomatous growth with subsequent transplantation of the crest of the tibia to fill the gap is narrated in some detail. The primary growth in the breast had been removed two years before and the metastasis in the femur was the only evidence of recurrence. At the time of writing, four months after the operation, the patient was doing well and able to walk with crutches.

There are as usual several interesting abdominal cases presenting problems in differential diagnosis. The whole number is quite up to the standard of interest which we expect in these clinics.

New Books on the New B P—MR WIPPELL GADD'S Synopsis of the B P 1914 (Eighth Edition, price 1s) and DR T P BEDDOES' Prescriber's Formulary and Index (both from Messrs Baillière, Tindall & Co) are two excellent little books, which must be useful to the practitioner who has to master the changes in the 1914 edition of the British Pharmacopœia.

MR WIPPELL GADD'S book is an admirable summary and gives at a glance the name, characters, imperial and as well as the metric dose of all the articles in the new B P. For many who will not care to purchase the new B P this summary will prove very attractive.

Dr Beddoes' elegantly got up little pocket book will be found useful both by prescribers and by students. The alterations in the new B P are clearly stated. The prescriber's Formulary is certainly useful to the student. In fact an enormous amount of practical knowledge is given in this little book. It will prove useful to both practitioner and student.

Another little pocket book on a similar subject is Dr Wm Craig's POISONOLOGICAL TABLES (Livingstone & Co) (Fourth Edition) with an appendix on poisons (price 1s) a wonderfully compact little book which should be of great use to hospital residents and senior students.

Correspondence.

LT COL H SMITH'S CATARACT STATISTICS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Will you give me space to correct the cataract figures given by Lt Col H Smith in his article in your May issue, (pp 161 & 163)? I may say first that cataract and therefore the operation for its relief, is, like stone, not nearly so common in Bengal as in the Punjab, and we have no towns named after the itinerant cataract coucher. I give the figures of cataract operations performed in "Bengal" as given by Col Smith, and as they were, side by side—

| Year | Col Smith's figures | Actual number |
|------|---------------------|---------------|
| 1910 | 4,266 | 4,266 |
| 1911 | 4,953 | 4,953 |
| 1912 | 2,464 | 5,679 |
| 1913 | 1,291 | 5,591 |

The inference that might be drawn from Col Smith's figures, viz, that cataract operations are becoming extinct in the Lower Provinces, is not correct therefore.

The mistake has arisen from his leaving out all the cataracts performed in Behar and Orissa, which before 1912 were given in one Report with Bengal, and, for the purpose of comparison with previous years, should have been included by him.

He has on the other hand, included the figures for the North West Frontier Province with those of the Punjab, though they have been kept separately since the formation of the new Province. Either they should not have swelled the Punjab figures or Behar and Orissa should have been included in Bengal.

There is no doubt that the figures in Bengal would be very much larger were more adequate accommodation provided for ophthalmic cases, patients as it is coming from the Punjab and other parts of India, and one is glad to know that the site is now being cleared for the new Calcutta Eye Hospital, which will be larger, up to date, and more worthy of the Presidency than the present out of date and wholly inadequate structure.

I am Sir, &c,

F P MAYNARD, M.B., F.R.C.S.,

Lt Col, I.M.S.

Prof of Ophth Surg, Medical College

CALCUTTA

May 22nd, 1915

P.S.—Col Smith's 1913 figures for Bengal, viz, 1,291, refer to Calcutta only, and entirely omit the rest of Bengal.—F P M

[Obviously Lt Col Maynard is correct in adding the Behar figures in 1912 and 1913, to the Bengal total.—L.D.]

JATS AND SCABIES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Of all Indian troops I have met, none suffer so severely from Scabies as the Jats. One gets a Jat Regiment clean with great difficulty, and then the men go on leave to their native place near Delhi, and return badly infected. A Colonel, Second in Command of a Jat Regiment, told me that the Jats worship a tree which is sacred to the curative agent of Scabies, a certain goddess. Now there is a tree lately introduced but now growing freely in Secunderabad, the *Pongamia glabra*, well known in Mysore as the "Nongry". The leaves of this tree are very subject to attack by an acarid, a species of the genus *Triophyes* or *Phytoptus* (Coleman). This acarid causes numerous little toothlike galls to grow on the under surface of the leaves. The result is that the leaves crumple up and assume a quite disgusting appearance. If the gall is carefully opened with a needle the acarid escapes and runs away with great rapidity, so that it is not easily caught. It is just easily visible to the naked eye.

I write in the hope that some of your readers who may be acquainted with the Jat at home, may tell us whether the tree I have referred to is found near the homes of the Jats, whether it is worshipped by the Jats and if so whether it is attacked by an acarid. Possibly there may be some connection between the prevalence of Scabies amongst these people and the attentions paid by them to an infected tree. Dr Coleman, however, is not aware of this particular acarid attacking man or any other animal, but it seems just worth a little investigation.

Yours, etc,

JOHN SMYTH, M.D.,

COL, I.M.S.

OLEUM RICINI ITS PLACE IN SURGERY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I hope the following observation may be of some interest to your esteemed readers.

Castor oil is protective and sedative while applied externally, a soothing application when dropped into the inflamed eye, a solvent for homatropine, and decidedly an excellent, mild and simple purgative, and a suitable remedy for getting rid of undigested food causing diarrhoea, a proper and favourite preparation with a minute quantity of landanum to treat certain forms of diarrhoea.

To add to its importance some claim to have derived much benefit in night blindness,* defective vision temporarily caused by being exposed to the sun for several hours in a day, the latter complaint being most common amongst the

*[Cod liver oil, or fresh fried liver is a prompt remedy for the night blindness, due to the intense glare of the hot weather.—Ed.]

labour classes, particularly to mention the cultivators I have, on several occasions, in dispensary practice, noticed people complaining of temporary suspension of clear vision, and a few drops of Castor oil into the eyes for a few days only, removed the trouble. It is claimed by some as an efficient galactagogue, but I have no personal experience. After all it is one of the best household remedies admits of no doubt.

Apart from these considerations one very important part that Castor oil plays in the domain of surgery is perhaps not known to many. In 1896 the writer himself had unfortunately met with an accident causing damage to the skin and the subcutaneous tissue on several parts of his body. A similar accident occurred in 1913, and on both occasions Castor oil was liberally used externally and the troubles were brought to an end uneventfully.

I joined the Military department in January last, and had an ample opportunity to try Castor oil in the Indian Cavalry Hospitals here, where injuries resulted from accidents were daily occurrences. My thanks are entirely due to Captain A. D. White, I.M.S., Medical Officer, who kindly permitted me to try my method of treatment in injury cases. The daily average number of cases thus treated was not below 10. The injuries comprised of (a) abrasions, (b) bruise and contusion, (c) wounds (incised and lacerated), and (d) burn and scald. Except in a very few number of cases when Tincture Iodine was first painted, all cases were uniformly treated simply with Castor oil soaked in a piece of common lint, and applied on the part or parts affected with cotton and bandage and gutta-percha tissue on when available to complete the dressing. Of course in every case the treatment was preceded by a thorough wash with warm antiseptic lotion. The healing was generally induced by first intention, sometimes by "granulation" or scabbing. Not a single case, however, ended in suppuration. I remember in an amputation case it was used in an after dressing—and no untoward effect resulted in.

I have certainly no idea of the relative value of this remedy when compared with the others, but that it at least compares favourably with the other methods of treatment is beyond dispute. How it actually operates on and acts against putrefactive bacteria my knowledge is very limited. Does it possess any antiseptic property? It can possibly make all organism inert and inactive by the process of "agglutination" but can it kill the bacteria directly and permanently checking its growth—a matter to which I beg to invite your attention and that of your worthy readers.

But it has certain advantages which cannot be denied. Firstly it is cheap and always available, simple and non-irritating application, can be practised by ignorant hands requiring no forestudy or experience. Its pain killing action is simply charming and therefore it has already become very popular here. To a poor country like India where the people cannot afford to meet the cost of costly methods of treatment in surgical cases especially, I think there is no harm if this treatment is allowed a trial everywhere.

REMARKS BY CAPT. A. DENHAM WHITE, I.M.S.

S. A. S. Ganguli has on several occasions brought to my notice cases of ulcers and abrasions and incised wounds which he has dressed with Castor oil.

I agree with him that cases so treated heal more rapidly than if treated with ordinary dry dressings or antiseptic compresses.

I ascribe the virtue of Castor oil to the fact that when applied to an abraded surface which has as far as possible been rendered surgically clean, it forms a protective layer over it. Whether in addition to this Castor oil possesses an action inhibiting bacterial growth I am unable to say but experiments would be interesting. In any case the drug is a most useful one in the treatment of superficial wounds.

A. DENHAM WHITE, CAPT., I.M.S.,
Medical Officer, Cavalry Hospitals, Meerut.

CONCLUSION

The paper may be full of misgivings without tables—but it remains to be seen how other observers record their opinion. If, however, accepted it may, I think, prove an efficient remedy, and safely be introduced into the public hospitals, where cheap treatment is considerably accredited. But I cannot conclude the paper without noting that in chronic ulcers or wounds or in instances where there is marked existence of putrid discharge, this remedy is of no use. In recent injuries it only does good.

Yours, etc.,
SATKARI GANGULI,
SUB ASST SURGEON,
12th Cavalry Hospital, Meerut.

29th April, 1915

OBJECTIONABLE PUFFING

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following method of advertising by a sub assistant surgeon in an up country dispensary is forwarded to you for publication. Comment on this method of "Puffing" is hardly needed.

Yours, etc.,
SURGEON

"EYE DROPS"

This lotion is to be dropped once every day at any time. The patient should abstain from taking acid things and chillies. After the operation one should have *ghee* in the ordinary manner and quantity. After forty days after the operation one should increase the amount of *ghee*. Whenever one likes one should apply almond oil or *ghee* to the head. One should wash the hair after one full month. When this medicine runs short, drop a post card and get a new supply. After two months one can take off the green shade and then apply the spectacles. All cataract extracted people are required to wear glasses, as without which clear vision cannot be had, spectacles can be had for the eye operated upon. This hospital undertakes with extreme care and diligence the treatment of stone in bladder, abdominal tumours, ascites, piles, urinary diseases, tumours, hernias, all eye diseases and all other general diseases.

[We agree with our correspondent that this method of puffing is objectionable.—Ed., I.M.G.]

RATS AND PLAGUE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Ref. Captain Lack's letter "Plague and Rats" in April No. "it might interest him to know that the incidence of bubonic plague was brought down or rather came down to nil in Secunderabad in April 1912 and has not recurred, and that rat destruction has not been carried out as a preventive measure.

C. A. BRODRIBB, B.S. (Lond.),
CAPTAIN, I.M.S.,
Late Plague Medical Officer, Secunderabad.

RETENTION OF A FOREIGN BODY FOR TWENTY YEARS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following case is worth putting on record. — Mrs. B., aged 27, had for many years suffered from attacks of pain in the throat which was localised to the right side of the larynx. She had been seen for this by several doctors, one of whom removed her tonsils without improving the condition—others thought the condition neurasthenic.

Recently her daughter, aged two, pressed with her fist against the right side of the patient's larynx, this caused some pain and started a violent attack of coughing, the patient coughing up a foreign body. This on examination proved to be an entire pin so thickly coated with rust that while being examined it broke into several pieces.

The patient remembers quite well that when 7 years of age she swallowed a pin and much fuss was made at the time in trying to find it. The throat had never been examined with a laryngoscope or x-rays.

The patient therefore has harboured this pin probably in her right laryngeal pouch for 20 years.

Yours, etc.,
C. BRODRIBB, M.B. B.S. (Lond.),
CAPTAIN, I.M.S.,
In charge, Civil Hospital, Secunderabad.

HYPNOTICS AND THEIR USES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Before dealing with the uses of various hypnotics, it is very essential for the student to know something about the Physiology of sleep, as it would help him a great deal in giving his discretion for the appropriate use of the drugs.

Physiology of sleep.—During sleep there is diminished irritability of entire nervous system, which is explicable only in part through fatigue of centripetal nerves, but is especially attributed in a peculiar manner to the central nervous system. During deepest sleep the psychic activities appear to be wholly at rest, so that the sleeping person may be compared to a being with extirpated cerebral hemispheres. There is reduction in the activity of the heart, of the blood pressure in the arteries of the amount of blood in the brain of the irritability of motor cortical centres, of the activity of respiration, of gastric and intestinal movements, in the generation of heat, in the secretions indicates a lessening in the activities of spinal cord. The pupils during sleep are the smaller the deeper the sleep. The cause of sleep is the consumption of potential energy in the nerves principally in the

central organs, which renders restitution necessary. Perhaps accumulations of decomposition product in the body (? Lactates) induce sleep.

The various Hypnotics and sedatives commonly used are —

| | |
|-------------------------|-------------------|
| 1 Paraldehyde | 9 Opium & Morphia |
| 2 Chloral Hydrate | 10 Adaline |
| 3 Bromides | 11 Isopral |
| 4 Hyoscine Hydrobromate | 12 Somnal |
| 5 Sulphonal | 13 Hedonal |
| 6 Medinal | 14 Urathane |
| 7 Trional | 15 Amylene |
| 8 Veronal | 16 Chloralose |

Paraldehyde is one of the best and safest hypnotic at the disposal of alienist. It quickly absorbs and produces calm refreshing sleep akin to natural slumber without any after effects and cardiac depression. However its use should be well considered as it would not suit all cases. It may be safely used in cases of insomnia due to cardiac or respiratory diseases, mania, hysterical excitement, melancholia and in the later stages of adynamic fever, etc. It is generally used in Asylum practice and is considered to be a valuable remedy. It should be given at bed time in 1 to 4 dram doses. Major A. O. Wright gives it in 2 to 3 dram doses when the pulse rate is rapid and the arterial tension is high but where the arterial tension is low, he administers it in 10 to 15 minimum doses.

The only drawback in the use of Paraldehyde is its mucous taste and unpleasant ethereal odour, which it imparts during its elimination by the breaths.

Its pungent disagreeable taste may be disguised by mixing it with Syrup or Tr. of orange and peppermint water. Large doses should be emulsified with compound Tragacanth powder. Dr W. J. Corindon of Lunatic Asylum, Agra, likes to add sufficient water to dissolve all the Paraldehyde.

Chloral Hydrate also acts quickly and therefore should be given at bed time. Its cardiac and respiratory depression should be noted and therefore should not be given to old people with fatty heart or lung diseases or to delicate or constitutionally weak persons. Its action is very satisfactory in cases of alcoholic insanity. In doses of 15 to 20 grains it induces a refreshing sleep, which thus obtained not infrequently leads to the repeated use of the drug and thereby induces the chloral habit. It should be prescribed with Syrup Ginger, as it covers its pungent taste very nicely. It may be given by rectum or subcutaneously.

Bromides of Potassium, Sodium or Ammonium are suitable for mild cases. Of these salts Pot Bromide easily ranks first and should be given in 3ss—3i doses with camphor or chloroform water. Some people speak of better results when the three salts are combined. Of all the sedatives they are probably the least harmful and can be administered for a long time. If given in full doses for a long time they sometimes tend towards dementia and derange digestion. Acute spots, etc. should be controlled by the admixture of 2 or 3 ms of Liq. arsenicales.

The Bromides are also usefully combined with other Soporotics such as Tr. Hyoscyami 3ss—3i or Tr. Cannab. Indica 3ss—3i or with Tr. Digitalis 3ss, which in such doses seems to have a calming effect on the central circulation. Pot Bro with Liq. morphine acts as a very nice sedative and hypnotic after surgical operations. I have seen its use with marvellous results after surgical operations in 6 or 7 Sadra Hospitals of these Provinces.

The Bromides also prolong and intensify the effect of Chloral Paraldehyde and Amylene Hydrate when prescribed with them. Bromides may be administered by the mouth, Rectum or hypodermically.

Hyoscine, Hydrobromate or Scopolamine should be used hypodermically in doses of g 1/100—g 1/75. It is a powerful motor depressant which should only be used to emergency purposes and is then sometimes given with Morphia. In Asylum practice I have seen its wonderful calming effect in cases of violent maniacal excitement.

Hyoscine g 1/75 and Duboisine g 1/100 have similar actions though less pronounced.

Sulphonal dose g xxvi is a tasteless powder and is not very soluble and therefore should be given in hot milk or hot water about 4 hours before retiring to bed. It has a cumulative action and keeps a patient quiet a next day and if repeated on the second night, its effects are more pronounced. It is a motor depressant and therefore it is very useful in mania. It suits old people well. Patients who are given this drug should however be induced to drink as much fluid as possible and the bowels should be kept open.

Its combination with Potassium Bromide may be warmly commended. 10 to 20 grains of sulphonal with 20 grains of Bromide in a cup of warm broth milk or chocolate should be taken about 4 hours before bed time.

Medinal Thiona and Veronal are fairly tasteless powders and are all hypnotic in frequent use. They should be given in doses 5 10, 15-30, and 5 10 grains respectively.

Medinal is more rapid in action than sulphonal and acts well in old people. It should be given about 30 minutes before retiring to bed.

Opium g 1/2 and *Morphia* g 1/8 to g 1/4 are given very little choice now a days as hypnotics, in insane persons. They are valuable as hypnotics, in neuralgias and surgical cases.

Adaline g 10 20, *Isopral* g 10 15 *Somnal* 30 40 minims, *Hedonal* dose 8 15 grs. All these drugs are used as hypnotics, but are not much in frequent use.

Urathane g 20 40 is fairly tasteless and is soluble. It produces light sleep and can be given to children.

Hydrate of Amylene dose 30 to 40 minims and *Chloralose* dose 2 5 grs. These hypnotics are practically out of use now a days.

There are few other hypnotics which are altogether out of use and hence I have not dealt with them.

SHYAMA SHANKER SHUKLA,

SUB ASSIST SURGEON,
Central Lunatic Asylum, Agra

THERAPEUTIC NOTICES

| | |
|--------------|---------|
| R/Colchicine | gr 1/70 |
| Ext Nux Vom | gr 1/4 |
| „ Hyoscyami | gr 1/4 |
| „ Gentiana | q s |

"Tabloid" Colchicine and Nux Vomica Compound presents a new and convenient means of administering colchicine in the treatment of gout.

The Nux vomica present tends to counteract any depressing effect of the colchicine. This product should prove useful in the treatment of acute and subacute gout.

Issued by Messrs Burroughs Wellcome & Co in bottles of 25 and 100.

"THROUGH the generosity of the public" writes Miss Storey, "I have been enabled to send sufficient Boviil to provide over 62,000 cups, which has been very much appreciated by our soldiers in the trenches. I am most anxious to dispatch, as soon as possible a further supply of 1,000 000 cups of this comfort to the front and I shall be very grateful, to those who will help me to do so by sending a donation to me at 39, Broadhurst Gardens, South Hampstead N.W. The entire profits derived from the sale of 'The Lord Roberts Post Card' (containing his address to recruits and a facsimile of his handwriting) are devoted to my fund, and I shall be pleased to forward 12 of these cards on receipt of 1s postal order and a stamped addressed envelope."

MESSRS JOHN BALL SONS & DANIELSON, LTD of Oxford House 83 91 Great Titchfield Street London, W. are about to issue an important medico educational work on "Defective Children". The volume is edited by Dr T. N. Kelyack and consists of a representative collection of studies by 27 well known medical experts, dealing with the chief forms of defectiveness in children. At a time when everyone realizes the importance of conserving the nation's children such a work should be of special service to all interested in the scientific supervision of child welfare work. The book is appropriately dedicated to Sir George Newman M.D., Chief Medical Officer of the Board of Education. The price of the volume will be Rs 5 10 net and the special agents in India are BUTTERWORTH & CO (India), LTD, 6, Hastings Street, Calcutta.

Service Notes.

SIR GERALD BONFORD, K.C.I.E., I.M.S.

SURGEON GENERAL SIR GERALD BONFORD, K.C.I.E. Bengal Medical Service, retired, died in London after a severe operation on 12th April 1915. He was born on 19th July 1851, educated at King's College, London, and took the L.S.A. in 1872, the M.R.C.S. and L.R.C.P., London and the M.B., London, in 1873 and the M.D. London in 1874. Entering the I.M.S. as Surgeon on 30th September 1874, he became Surgeon Major on 30th September 1886 Surgeon Lieutenant Colonel on 30th September 1894 and was placed on the selected list on 29th March 1900. On 1st January 1905 he was appointed Director General of the

Indian Medical Service, stepping over the rank of Colonel. He retired, after five years' tenure of that office, on 1st January, 1910.

Soon after entering the I M S he served in the Perak war of 1875-76, in the Malay Peninsula, receiving the medal with a clasp, after the war he was posted to famine duty in the Madras Presidency, in the Madras famine of 1877. On his return he became Civil Surgeon of Simla, and after two years there, was appointed Garrison Surgeon of Fort William. Vacating that post on promotion to Surgeon Major, he was posted to the second battalion of the 2nd Gurkhas, but soon after was appointed to act as Secretary to the Surgeon General, with the Government of India. That appointment he held for about eight years including a brief spell as Civil Surgeon of Nagpur, the Capital of the Central Provinces. In 1893 he was appointed Principal of the Calcutta Medical College, also Professor of Medicine in the Colleges and first physician to the College Hospital, holding that post till his promotion to Director General. During his tenure of office the rebuilding of the College laboratories and class rooms was carried out on an extensive and liberal scale. He became Director General of the I M S on the same day that Sir Alfred Keogh was promoted to that post in the R A M C, and both were Lieutenant Colonels when promoted, both passing over the entire grade of full Colonel. Sir Gerald's successor as Director General, Sir Charles Pender Lukis, also held the post of Principal of the Calcutta Medical College before his promotion.

Sir Gerald was decorated with the C I E on 1st January 1903, and with the K C I E on 1st January 1909. In 1905 he received the honorary fellowship of the Edinburgh Royal College of Surgeons. After his retirement he settled at Dover. He married the daughter of the late Colonel Eteson, of the Indian Army, and leaves two sons, the elder in the Indian Civil Service, in the United Provinces, the younger at Marlborough, and two daughters.

A correspondent sends us the following—

"Outside his immediate circle of friends Surgeon General Bomford was not perhaps as well known as his personal and professional qualities deserved. He was a man of singularly quiet and reserved disposition with an almost morbid hatred of self assertion or of any display of feeling, and he lived a very retired life, never going out into general society if he could possibly avoid it. He was, moreover, a man of an intensely scientific and critical turn of mind with no particular taste for private practice, so that he had not the extensive circle of old patients that falls to the lot of the average Civil Surgeon."

SURGEON COLONEL CHARLES PETER COSTELLO, Bengal Medical Service, retired, died on 1st April at Wimbledon, from heart failure following bronchitis. He was born on 28th June 1835, educated at the Carmichael Medical School, Dublin, and took the L A H Dublin in 1856, the L M Coombe, and the L R C S Ed in 1858, and the F R C S Ed in 1881. Entering the I M S as Assistant Surgeon on 10th February 1859, he became Surgeon on 10th February 1871, Surgeon Major on 1st July 1873, Brigade Surgeon on 30th June 1886, and Deputy Surgeon General on 1st January 1889, retiring on 1st January 1894. His war services comprise two North West Frontier expeditions, the Ambeyla campaign of 1893-94 when he took part in the forcing of the Ambeyla pass, receiving the medal and clasp, and the Jowaki campaign of 1877-78 clasp, the Afghan war of 1878-80, the Hissarak and Laghman valley expeditions, medal and the Manipur campaign of 1891 on the North East frontier of India when he was mentioned in despatches, G G O No 585 of 1891. His earlier service was spent chiefly in the Punjab Frontier Force. On promotion to the administrative rank in 1889, he became Principal Medical Officer and Sanitary Commissioner of Assam. In 1869 he married Miss Elizabeth Mary Harkan, and leaves two sons, Dr Charles Thomas Costello, of the West African Medical Staff, and Major Edmund William Costello, of the Indian Army, who won the V C on the Malak in 1897, and is now serving in the Persian Gulf, and two daughters.

The number of casualties reported in the five days 2nd to 6th April, inclusive was 45, viz., 18 officers killed, 25 wounded, and 5 prisoners. Two medical officers were included among the wounded, Lieutenants E Stratford and A N Smith, R A M C.

Lieutenant Ernest Stratford was educated at Cambridge St. Thomas', and St. Mary's took the M R C S and L R C P London, in 1905 and after serving as Resident Medical Officer of the West End Hospital for diseases of the Nervous System went into practice at Wokingham, Berkshire. He received a temporary commission as Lieutenant in the R A M C on 16th September 1914.

Lieutenant A W Smith's name is not given in the March Army List. Probably the initials are wrongly given.

THE casualty lists of 7th and 8th April contained 32 names, viz., 12 officers killed, one died and 19 wounded. No medical officers were included.

THE *London Gazette* of 7th April gives the names of 21 officers, to be added to the list of officers mentioned in despatches for gallant and distinguished service in the field, in Field Marshal French's dispatch of 14th January, published in the *London Gazette* of 17th February. Three officers of the R A M C are included in the list, Major S L Cummins, Captain C G Broune, and temporary Lieutenant G W Milne.

ON 18th March a long casualty list was published 56 officers killed, and 62 wounded, total 118. No medical officers were included. The Cameromians lost 14 officers killed and 8 wounded, the Sherwood Foresters 8 killed and 5 wounded.

ON 19th March only three casualties were officially reported, two officers killed and one wounded, all Canadians.

The list published on 20th March was the biggest by far in any one day since the beginning of the war, the total casualties amounting to 220, viz., 89 killed, 123 wounded, 6 missing, and 2 prisoners. They were classified as follows—British officers in Flanders, 73 killed, 90 wounded, and two missing, Indian troops in Flanders, ten British officers killed and 17 wounded, Indian officers two killed, 11 wounded, 3 missing, and 2 prisoners, in East Africa 3 British officers killed, in the Persian Gulf one Indian officer killed, 5 wounded, and one missing.

LIEUTENANT DERWENT CHRISTOPHER TURNBULL, R A M C, who had been reported wounded a few days before, died on 14th March, of wounds received on 10th March. He was the fifth son of William P Turnbull, of Church Strelton, late of Sheffield and Settle Inspector of Schools, and was 24 years old. He was educated at Sheffield Grammar School, Giggleswick School and Sheffield University, where he qualified in 1914. He was appointed a temporary Lieutenant on 10th December 1914, and was attached to the 1st Cheshire regiment. He received his wounds while trying to convey a wounded officer into safety, under heavy fire.

ON 22nd March, again, the list of casualties was almost as long as that of the 20th, the total amounting to 206. In Flanders, 58 officers killed, 72 wounded and three missing, total 133, British officers of Indian troops seven killed, 19 wounded, and one missing, total 27, Indian officers, 18 killed, 26 wounded total 44. The total of 206 is made up by a Canadian officer wounded and one Indian officer died in East Africa. The names of no less than five medical officers are included, Captain W T McCurry, R A M C, killed, Lieutenant D C Turnbull, R A M C, whose death had previously been unofficially reported, died of wounds, and Captains J Taylor and F O'D Fawcett, of the I M S, and Lieutenant F C Davidson, R A M C, wounded.

LIEUTENANT WALTER TENNISON MCCURRY, R A M C, after taking the license of the Apothecaries Hall, Dublin, entered the Special Reserve of the R A M C on 11th March 1913, and joined for duty on 6th August 1914.

CAPTAIN JOHN TAYLOR I M S was educated at Glasgow University, where he took the M B and Ch B in 1905, and the M D with Honours in 1909. He entered the I M S as Lieutenant on 1st September 1906, and became Captain on 1st September 1909. Before the war broke out he was a member of the Plague Research Commission at Parel, Bombay.

CAPTAIN FREDERICK O'DOWDA FAWCETT was educated in the school of the Irish College of Surgeons. He took the L R C S I and L R C P I in 1906 and the D P H of Dublin University in 1911. He joined as Lieutenant on 2nd February 1907, and became Captain on 7th March 1910. He is medical officer of the 1st Gurkha Rifles.

LIEUTENANT FREDERICK CHURCHILL DAVIDSON, R A M C, was educated at Edinburgh University where he took the M B and Ch B in 1912, and entered the army as Lieutenant on 24th January 1913.

ON 23rd March the casualty list amounted to 19, 10 officers killed, and 9 wounded, not including any medical officers.

ON 24th March 20 casualties were reported, eight officers killed, and 12 wounded. Two medical officers' names appeared in the list, Lieutenant J R Waddy, killed, and Lieutenant A E Biggam, wounded.

LIEUTENANT JOHN RAYMOND WADDY took the M R C S and L R C P, London, in 1912, and got a temporary commission as Lieutenant in the R A M C on 11th August, 1914.

Lieutenant Alexander Gordon Biggam, R A M C, was educated at Edinburgh, where he took the M B and B Ch in 1911. After serving as house surgeon and house physician in the Royal Infirmary, Edinburgh, he entered the army as Lieutenant on 1st February, 1911.

ON 25th March the casualties reported were 26, 10 officers killed, and 16 wounded, no medical officers were included.

THE recent fighting in Flanders, the capture of Neuve Chapelle and the defence of St Eloi appears to have cost the British army alone nearly eight hundred officers. The casualties officially reported in the eleven days, 15th to 25th March, appear to have totalled up to 803, of whom 266 were killed, the greater part of the balance wounded, with a few missing and prisoners. These figures include a few casualties from other parts of the world, East Africa, the Persian Gulf, Egypt etc., but practically these losses were incurred in the fighting in Europe.

LIEUTENANT-COLONEL WILLIAM HENRY GRAY, Bengal Medical Service, retired, died at Aberdeen on 14th January 1915. He was educated at Aberdeen where he took the M B and C M in 1886, and entered the I M S as surgeon on 31st March 1888 becoming Major on 31st March 1900, and Lieutenant Colonel on 31st March, 1908, and retiring on 24th October, 1913. He served in two campaigns on the North West Frontier of India, gaining a medal and clasp in each case, in Waziristan, 1894-95, and in Buner, 1897-98. The latter half of his service was spent in civil employ in the North West, now the United Provinces, chiefly in the jail department where he was for several years prior to his retirement Superintendent of the Benares Central Jail.

THE Elder Dampster liner *Falaba* was torpedoed by a German submarine in the Irish sea, on Sunday, 28th March, the day after leaving Liverpool for the West Coast of Africa. No time was given to take to the boats, so great loss of life occurred the number missing, passengers and crew, amounting to 112 while 104 were saved and seven more, including the Commander, Captain F J Davis, died after being rescued. Among the missing were included three medical men Dr F J A Baldwin, A W H Grant, and J C Fox. A later account stated that Dr Fox had been saved.

DR FRANCIS JOHN AUGUSTUS BALDWIN was educated at the London Hospital took the L S A in 1891, the M R C S and L R C P, London in 1896, and the diploma of the London School of Tropical Medicine in 1903. He was a member of the West African Medical staff in the province of South Nigeria.

Dr Alexander William Harvey Grant was also a member of the West African Medical staff, and used to be stationed at Ogoja in the East Province of South Nigeria. He was educated at Charing Cross, and took the L S A in 1901 the L M S S A in 1908. He had served as a Civil Surgeon in the South African War, and held the medal with three clasps, and also as Assistant Medical Officer of the Brecon and Radnor Asylum at Talgarth, and of the three Counties Asylum at Hitchin.

Dr John Crofton Fox was educated at Cambridge and St Thomas' Hospital and took the M R C S and L R C P, London, in 1909. He was a medical missionary in North Nigeria, under the Church Missionary Society.

THE *London Gazette* of 27th March announced that the D S O had been conferred upon five officers, and the Military Cross upon eight officers. Among them were two officers of the R A M C Lieutenant (temporary) E H Moore, who receives the D S O, and Lieutenant T W Clark, Special Reserve, who gains the Military Cross. The latter order was also conferred upon one officer of the Indian army, Captain W E Fleming 41st Dogras.

D S O—Lieutenant Edward Hume Moore, M B, R A M C, attached 2nd Battalion Leicestershire Regiment—Who twice went to the assistance of wounded men under the enemy's fire.

Military Cross—"Lieutenant T W Clark, M B, R A M C, Special Reserve—For conspicuous gallantry and great devotion to duty during the past six months. On the 5th instant, at Neuve Eglise, when the 14th Field Ambulance Dressing Station was destroyed by shell fire, one officer and five men being killed and nineteen wounded therein, Lieutenant Clark continued to attend on the wounded with great gallantry until he collapsed from his own wound which he received from the first shell."

In the casualty lists of the first week in March appeared the names of Major F G Richards, R A M C, killed in action at Neuve Eglise, and of Lieutenants Clarke and Moore wounded.

THE casualty lists of 26th and 27th March contained thirty names 11 officers killed, 4 died, 13 wounded, and 2 missing. On the 27th one medical officer, Lieut J W Cannon, R A M C, was reported as wounded.

Lieutenant J W Cannon entered the Special Reserve of the R A M C on 19th August 1914, and was called up on 19th September 1914. He must have qualified only recently, for his name does not appear in the *Medical Directory* for 1914.

A LARGE list was published on 29th March, including sixty names British officers killed 11, wounded 25, missing 2, interned in Holland 4 total 42, and Indian officers 3 killed, 13 wounded, and 2 missing. Among the wounded were Captain H S Cormack, I M S, and Lieutenant H M Mackenzie, R A M C.

Captain Harry Slater Cormack, I M S, was educated at Edinburgh University, where he took the M B and Ch B in 1905, and entered the I M S as Lieutenant on 28th January 1911. He was medical officer of the 47th Sikhs.

Lieutenant H M Mackenzie, R A M C, received a temporary commission as Lieutenant on 5th October 1914. He must have qualified only recently, his name not being in the *Medical Directory* for 1914.

ON 30th and 31st March the number of casualties reported was small, only 22 in the two days, viz, killed 7, wounded 15. Among the wounded was Lieutenant R F Wilkinson, R A M C.

Lieutenant Russell Facey Wilkinson, R A M C, took the M R C S and L R C P, London, in 1913, and received temporary commission as Lieutenant on 16th September 1914.

On 1st April six casualties were reported, 2 officers killed and 4 wounded, not including any medical officers.

WE lately reported that Colonel George Francis Rowcroft, D S O, late commandant of the 15th Sikhs, had qualified as a medical man after retiring from the army, and having been appointed as temporary Major in the I M S, was serving at the convalescent depot for Indian sick and wounded at Milford, Hants. The *Medical Directory* for 1915 shows that he studied at Beits, took the M R C S and L R C P, London in 1914, and recently served as junior House Physician to the Children's Hospital, Shadwell, East London.

HIS EXCELLENCY LORD CRPWE, Secretary of State for India accompanied by Sir Walter Lawrence, Bart, inspected all the Indian hospitals in Brighton on Saturday 27th March. The three Indian General hospitals in the Kitchener hospital, Brighton, commanded by Colonel Sir Bruce Seton and Lieutenant Colonels Austen Smith and J W Crawford that at Brockenhurst under Lieutenant Colonel Lloyd and that at Bournemouth under Lieutenant Colonel Browning Smith have all been warned for service in France.

LIEUTENANT COLONEL C N BENSLEY, I M S (retired), is appointed to be Civil Surgeon Taunggyi in place of Civil Assistant Surgeon P Radhakrishna Menon, M R, C V (Mad).

LIEUTENANT COLONEL L F CHILDE M D (Lond) I M S, was granted privilege leave of absence for nineteen days combined with furlough under military rules from the 7th November to the 17th December, 1914.

LIEUTENANT COLONEL CHILDE was temporarily retained in the service after age of 55 years but has since been obliged to take seven months leave on medical certificate.

During the absence of Lieutenant-Colonel Childe, the following appointments were made—Lieutenant-Colonel A Street, M B (Cantab), F R C S, I M S, acted as Senior Medical Officer, J J Hospital and Principal Grant Medical College, Bombay, in addition to his own duties.

MAJOR E F G TUCKER, M B, B S, M R C P (Lond), I M S, acted as First Physician, J J Hospital, and Professor of Medicine and Clinical Medicine and Therapeutics, Grant Medical College, Bombay

Major R M Carter, F R C S, D T M (Liverpool) I M S, acted as Second Physician and Registrar, J J Hospital, and Professor of Materia Medica and Pharmacy, Grant Medical College, Bombay, in addition to his own duties

THE services of the undermentioned officers are replaced temporarily at the disposal of His Excellency the Commander in Chief in India, with effect from the dates mentioned against their names —

Major E R Rost I M S, —11th March, 1915 (before noon)

Major R D Sugol, F R C S E, I M S, —10th March, 1915 (afternoon)

COLONEL C C MANIFOLD, C B, M B, I M S, Inspector General of Civil Hospitals, United Provinces, is granted privilege leave for three days and in continuation leave on private affairs for one day under paragraph 226, Army Regulations, India, Volume II, with effect from the 25th March, 1915

THE Hon'ble Major J C Robertson, C I E, M B, I M S, Sanitary Commissioner with the Government of India, is granted privilege leave for one month and twenty one days with furlough on medical certificate for six months and ten days in continuation, with effect from the 13th April, 1915

MAJOR W W CLEMESHA M D, I M S, Sanitary Commissioner, Bengal, is appointed to officiate as Sanitary Commissioner with the Government of India during the absence or leave of the Hon'ble Major Robertson, I M S, or until further orders

THE undermentioned officer has been reinstated in the service by the Most Hon'ble the Secretary of State for India, subject to His Majesty's approval, with effect from the date specified —

Captain Greer Edmund Malcomson, M D (Resigned), — 22nd February, 1915

SUBJECT to His Majesty's approval, the undermentioned to be a temporary Lieutenant for the period of his honorary service on the Hospital Ship "Madras," with effect from the date specified —

Taravath Madhwa Nayai, M D, 12th November 1914

WITH reference to the Notifications quoted in the margin, the promotion to the present rank of Major Robert McLachlan Dalziel, M B, F R C S F published in Army Department Notification No 96, dated the 31st January 1913, is antedated from the 29th January, 1913 to the 29th July, 1912

The promotion to the present rank of Majors James Woods M B, and Roger Durant Willcocks, M B, published in Army Department Notification No 122 dated the 6th February 1914, is antedated from the 29th January, 1914 to the 29th July, 1913

THE undermentioned 3rd Class Assistant Surgeons, having completed five years' service in that class and passed the required departmental examination to be 2nd Class Assistant Surgeons with effect from the 2nd March, 1915 —

Louis Victor Jaensch Frank Walton Holmes, Ambrose McCombs, James Samuel Salt, Philip Bell and Henry James John Fordham

The Hospital writes —

The commandant of the Lady Haidinge Hospital for Indians at Brockenhurst, Lieutenant-Colonel Francis Frederick Perry, C I E, has had a distinguished connection with the Indian Medical Service from which he retired some little time ago. A student of University College Hospital he qualified in 1876 and became an F R C S Eng in 1890. His academic successes include the Atkinson Morley scholarship at his hospital the Herbert scholarship and the Parkes and Martin medals at Netley, whilst in the course of his career he held the important posts of professor of surgery and ophthalmic surgery at Lahore Medical College and principal surgeon to the Mayo Hospital there. Before entering the I M S he was house physician and house surgeon at University College Hospital, whilst at Westminster Hospital he held the posts of demonstrator in anatomy and surgical tutor.

THE Indian Order of Merit has been given by the King Emperor to No 1116 1st Class Sub Asst Surgeon Nagindat Singh "for gallantry and devotion to duty" — (London Gazette of 9th March, 1915)

MAJOR T S B WILLIAMS, Indian Medical Service, an Agency Surgeon of the 2nd Class, is posted as Agency Surgeon, Eastern Rajputana States, with effect from the 23rd March, 1915

THE following changes are sanctioned among Agency Surgeons under the Foreign and Political Department —

Consequent on the replacement at the disposal of His Excellency the Commander in Chief in India of the services of Lieutenant Colonel W H B Robinson, Indian Medical Service (Bengal) an Agency Surgeon of the 1st Class, and with effect from the 21st September, 1913 —

Lieutenant Colonel R C Macwatt, Indian Medical Service (Bengal), an officiating Agency Surgeon of the 1st Class to be an Agency Surgeon of the 1st Class, substantive *pro tempore*

Consequent on the replacement at the disposal of His Excellency the Commander in Chief in India of the services of Lieutenant Colonel P J Lumsden, Indian Medical Service (Bengal), and Agency Surgeon of the 1st Class, and with effect from the 27th October, 1914 —

Major F A Smith, Indian Medical Service (Bombay), an Agency Surgeon of the 2nd Class, to be an Agency Surgeon of the 1st Class, substantive *pro tempore*

LIEUTENANT COLONEL ROBERT HENRY ELLIOT, M D, F R C S, Indian Medical Service Madras has been permitted by the Most Hon'ble the Secretary of State for India to retire from the service, subject His Majesty's approval, with effect from the 19th April, 1915

Lt Col Elliot was born in 1864, entered the I M S in 1892 and has been for many years, Ophthalmic Surgeon in Madras where he has made the Ophthalmic Hospital famous for cataract and especially for the modern operation for glaucoma. Lt Col Elliot has set up in practice in London. His glaucoma operation has been well received by Surgeons both in America and in England

THE following promotions are made subject to His Majesty's approval —

Captains to be Majors, I M S

28th February, 1915

Robert Kelsall, M D, Charles Hildred Brodrick, M B, John McCallum Anderson Macmillan, M B, F R C S, Clifford Allchin Gill, Richard Francis Steel M B, F R C S E, Arthur Charles Ingram M D, Ernest William Charles Bradfield, M B, F R C S E, John Brown Dalzell Hunter, M B, F R C S E

These eight officers belong to the batch with 1st Commissions dated 31st August, 1903, and they consequently have received accelerated promotion by six months. In this batch there still remain six officers who have not yet earned or received this accelerated promotion

The promotion to the present rank of Majors Henry Ross, M B, F R C S I, and Leonard Hirsch F R C S E, published in Army Department Notification No 682, dated the 31st July, 1914, is antedated from the 26th July, 1914 to the 26th January, 1914

THE promotion to the present rank of Majors John O'Leary, M B, F R C S I, Cuthbert Lindsay Dunn and Raghbir Dayal Sangol, F R C S E published in Army Department Notification No 910, dated the 9th October 1914, is antedated from the 1st September, 1914, to the 1st March, 1914

MAJOR A O C WATSON M B, C M, F R C S, I A M C (Retired List), is re-employed, as temporary Civil Surgeon in these Provinces and is posted to Akola

ON relief by Major A O C Watson, M B, C M, F R C S, R A M C, Honorary Captain J Robertson, I S M D, Civil Surgeon, Akola, is transferred temporarily to Nagpur

THE Chief Commissioner is pleased to appoint temporarily Honorary Captain J Robertson I S M D, Civil Surgeon, Nagpur, as Superintendent of the Lunatic Asylum, Nagpur

THE Chief Commissioner is also pleased to appoint temporarily Honorary Captain J Robertson I S M D, Civil Surgeon, Nagpur, as Superintendent of the Medical School, Nagpur

ON relief by Honorary Captain J Robertson, I S M D, Major P F Chapman, M B, C M, I M S, Civil Surgeon, Nagpur, is appointed to be Civil Surgeon, Pachmarhi, with effect from the 1st May, 1915, or the subsequent date on which he assumes charge of his duties

LIEUTENANT COLONEL G M C SMITH, I M S, made over charge of the duties of Superintendent of the District Jail at Ferozepore to Assistant Surgeon S Amrik Singh on the afternoon of the 30th March, 1915

ASSISTANT SURGEON S ANRIK SINGH made over charge of the duties of Superintendent of the District Jail at Ferozepore to Assistant Surgeon Sayyad Nazir Hussain on the forenoon of the 3rd April, 1915

ASSISTANT SURGEON B FERROZE UD DIN, assumed charge of the medical duties of the Montgomery Central Jail on the forenoon of the 27th of March, 1915, relieving Chaudhri Mela Ram

MR H B BLAKER, Military Assistant Surgeon, having passed an examination in the Lushai language according to the tests laid down in rule 4 of the Rules for the encouragement of the study of the languages of frontier tribes, published under Eastern Bengal and Assam Government Notification No 10000C, dated the 3rd September, 1907, is presented with the authorised reward of Rs 500

CIVIL ASSISTANT SURGEON M L KUNDU, officiating Resident Surgeon, Rangoon General Hospital is appointed to lecture at the Burma Government Medical School in Materia Medica and Pharmacy, with effect from the 11th March, 1915, the date on which Major A G Sargent, I M S, received charge of the lectureship in Medicine and Clinical Medicine from Major E R Rost, I M S

This department Notification No 88, dated the 16th March, 1915, is modified accordingly

LIEUTENANT COLONEL MERWANJI PESTONJI KHAREGHAT, I M S, (retired), Acting Superintendent of Matheian in the district of Kolaba, is appointed, under section 12 of the Code of Criminal Procedure, 1898, to be a Magistrate of the First Class in that district

HIS Excellency the Governor of Bombay in Council is pleased to make the following appointments during the absence on deputation of Major R M Carter, F R C S, D T M (Liverpool), I M S —

Major L T R Hutchinson, M D, B C, D P H (Cantab), I M S, to act as Professor of Pathology and Morbid Anatomy and Curator of Pathological Museum, Grant Medical College, in addition to his own duties, from the date of Major Carter's departure pending relief by Major E F G Tucker

Major E F G Tucker, M B, B S, M R C P (London), I M S, to act as Professor of Pathology and Morbid Anatomy and Curator of Pathological Museum, Grant Medical College, in addition to his own duties, pending further orders

HIS Excellency the Governor of Bombay in Council is pleased to make the following appointments during the absence on leave of Lieutenant Colonel L F Childe, M D (London), I M S, or pending further orders —

Major E F G Tucker, M B, B S, M R C P (London), I M S, to act as First Physician, J J Hospital and Professor of Medicine and Clinical Medicine and Therapeutics, Grant Medical College

Lieutenant Colonel A Street, M B (Cantab), F R C S, I M S, to act as Senior Medical Officer, J J Hospital, and Principal, Grant Medical College, in addition to his own duties

Major L T R Hutchinson, M D, B C, D P H (Cantab), I M S, to act as Second Physician and Registrar J J Hospital, and Professor of Materia Medica and Pharmacy, Grant Medical College, in addition to his own duties

THE services of Captain W D H Stevenson, M D, B Ch (Glas), D P H, I M S, are replaced at the disposal of the Government of India for employment on military duty

MAJOR WALTER HULBERT COX, D S O, Indian Medical Service, has been permitted by the Most Hon'ble the Secretary of State for India, to retire from the service, subject to his Majesty's approval, with effect from the 12th April, 1915

LIEUTENANT COLONEL C MACTAGGART, C I E M B, I M S, Inspector General of Prisons, United Provinces, is appointed to be Inspector General of Civil Hospitals, United Provinces, with effect from the 29th March, 1915

MAJOR H C BROWN, M B, I M S, is appointed permanently to the Bacteriological Department

LIEUTENANT COLONEL G M I C SMITH, I M S, has been posted to Murree as Civil Surgeon

DR. C MELA RAM, M B, has been posted to Dharmasila as Civil Surgeon

PRIVILEGE leave for three months, under Article 260 of the Civil Service Regulations, is granted to Lieutenant Colonel C H Bensley, M R C S, L R C P, I M S, Superintendent, Central Jail, Nagpur, with effect from the 3rd May, 1915, or the subsequent date on which he may be permitted to avail himself of it

THIRD grade Civil Assistant Surgeon Sukumar, Sanyal, L M & S, in charge of the Main Hospital, Mandla, is appointed to officiate as Civil Surgeon, Mandla

ON relief by Civil Assistant Surgeon Sukumar Sanyal, L M & S, Honorary Lieutenant J A F Harvey, I S M D, Civil Surgeon, Mandla, is appointed to officiate as Superintendent, Central Jail, Nagpur, during the absence on leave of Lieutenant Colonel C H Bensley, M R C S, L R C P, I M S, or until further orders

THE following notification by the Government of India, Department of Education (Sanitary), is republished —

"No 478 dated the 15th April, 1915

Doctor D A Turkhud, M B, C M, is appointed substantively to the Bacteriological Department, with effect from the 11th March, 1915

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

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Annual Subscriptions to "*The Indian Medical Gazette*," Rs 12, including postage, in India Rs 14, including postage, abroad

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Report of Amritsar Municipality Municipal Press
T P Kirkpatrick's Nursing Ethics
Gimlette's Malay Poisons J & A Churchill
E W Hope Text book of Public Health Livingstone & Co
Major B D Basu's Diabetes (5th Ed.) Panini Press, Allahabad
Reprints of Annals of Tropical Medicine
Transactions of Socy of Tropical Medicine
United Fruit Co, Medical Department Report for 1914
Cabot's Vol II Diagnosis W B Saunders Co
Prentiss' Text book of Embryology W B Saunders Co
W Craig's Posological Tables (4th Ed.) E & S Livingstone
Ransome's, A Campaign against Consumption Cambridge University Press
Glaister's Text book of Medical Jurisprudence, 3rd Ed, 1914 F & S Livingstone

BOOKS, REPORTS, &c, RECEIVED —

Capt C A Gill, I M S, Basia, Capt H Acton, I M S, Madras, Capt Proctor, I M S, Brokenhurst Lt Col D G Crawford, Brighton
Lieut E J Murphy, Burma Lt Col H Smith, I M S, Amritsar, Brigade Surgeon D F Keegan, London Mr H M Haffkine, Calcutta
Capt C A Brodribb, I M S, Secunderabad, Lt Col W E Jennings, I M S, Bombay, Lt Col Jackson, I M S, Bombay, Major Fowler, I M S, Dr Deane, Singapore, Supdt D J Zenana Hospital, Kashmir, Dr G C Chatterjee, Calcutta

Original Articles.

RESULTS OF THE TREATMENT OF 69 CASES OF CHOLERA BY ROGERS' METHOD

BY J. A. SINTON, M.B.,

CAPTAIN, I.M.S.

WHILE I was acting as Civil Surgeon, Kohat, during the hot weather of 1914, an epidemic of cholera occurred in the city and district of Kohat, North-West Frontier Province, India. This outbreak first made its appearance about the end of June, reached its maximum intensity during the early weeks of August, and died out at the beginning of October.

There were in all 1,162 seizures with 885 deaths, being a mortality of 76.12 per cent.

The following table shows the incidence and the mortality amongst the various classes —

| Class | Seizures | Deaths | Mortality. |
|---------------|----------|--------|------------|
| Mohammedans | 1,127 | 861 | 76.39% |
| Hindus | 32 | 22 | 68.88% |
| Other classes | 3 | 2 | 66.66% |

The greater incidence amongst the Mohammedan population was accounted for by the facts that the people of this district are almost all Mohammedans and that the Mohammedan month of fasting (the "Roza") occurred during the epidemic. This fasting appeared to be an important predisposing factor because the epidemic became more intense and spread rapidly as soon as this month began and died down as soon as it was over. This period was from 25th July to 23rd August and during this time 714 cases occurred, while previous to this date there had only been 47 seizures. There were 401 afterwards.

The people at the outset declined all European treatment, and in the outlying districts objected most strongly to any preventive measures, in fact they blamed such steps for the prevalence of the disease.

It was only with great difficulty that anyone could be persuaded to accept treatment, but when they saw its beneficial effects more cases consented. In all 69 cases were treated by me personally, of which 53 occurred in small villages around Kohat City and 16 in the Cantonment. There were 15 deaths amongst these 69 treated cases, *i.e.* a mortality of 21.7 per cent.

The cases which occurred in the villages were treated in their own homes as they absolutely refused to come into hospital or cholera camp and it was impossible to force them.

This of course, greatly increased the difficulties of treatment as it was impossible, owing to

stress of work at the time, to visit the villages more than twice daily and sometimes only one visit could be made. These cases received no nursing beyond that which their friends could give them, and it was the friends who carried out any after-treatment ordered. On this account, in my opinion, it is probable, if these cases had been treated under more favourable conditions and kept under proper observation, that a larger number might have recovered.

That very little of the marked difference between the mortalities in treated and untreated cases could possibly be due to diminished virulence of the disease is shown by the following points —

(1) The majority of the cases were treated in the early weeks of August when the epidemic was at its height.

(2) During the weeks previous to the beginning of August the mortality in the villages was 88.8 per cent, while in the early weeks of August it was 83.4 per cent amongst untreated cases.

In the early stages of the epidemic the diagnoses were confirmed in the laboratory, but later the clinical signs and symptoms had to be relied on.

TREATMENT

Sir L. Rogers' treatment of cholera may be divided into the following heads —

(1) Measures to combat the collapse due to toxæmia and loss of fluid.

(2) Drugs given to destroy toxins in the bowel.

(3) Measures to prevent recurrence of collapse and combat suppression of urine.

(4) Treatment of complications.

1 MEASURES TO COMBAT COLLAPSE

The principal means used to combat collapse was the intravenous injection of hypertonic saline solution made up according to Rogers' formula.

All the cases injected received intravenous injections, and some were also injected subcutaneously later. The intravenous method was chosen in preference to the subcutaneous on account of its greater rapidity. Intraperitoneal injections were not tried.

When a case was first seen the following points were taken as indicating the necessity of an injection of hypertonic saline —

(1) Collapse. In all collapsed cases an injection was made at once.

(2) Condition of the pulse. If the pulse was absent, almost imperceptible, or very rapid, it was considered to be an indication for injection.

(3) Cyanosis and restlessness, especially if combined with severe cramps in the legs or abdomen,

(4) Suppression of urine lasting more than 12 or 14 hours

(5) Very severe vomiting and diarrhoea likely to cause collapse before the next visit, especially in the aged and in children

The amount of saline injected at one time was regulated by the pulse tension and the general condition of the patient, as neither time nor facilities were available for taking the blood pressure. In the adult an initial injection of about 3 pints was usually required before a pulse of good tension appeared at the wrist, and the patient's condition improved to some extent, but in some cases as much as 5 pints were needed.

In children usually from 1 to $1\frac{1}{2}$ pints were given. The initial dose of saline is shown in the attached table under the heading "Saline."

If a larger initial dose of saline had been given to some patients it is possible that they might not have developed uræmia later, but as the amount of saline which could be carried around in the villages was limited, a larger quantity could not be spared.

Amongst the cases in cantonments the effect of the initial dose was kept up by rectal injections of isotonic saline given hourly, but in the villages this was impossible, both on account of the rooted objection of the inhabitants to any such method of treatment and to the difficulties of carrying it out amongst a lot of widely distributed cases under treatment in their own homes. All that could be done was to advise the friends to give lots of water in small quantities at short intervals and not to cease this even if it appeared to make the case vomit.

The collapse was also combated with injections of strychnine, pituitrin, and adrenalin hypodermically.

In the cases which were injected hot water bottles were not used. In no case was hyperpyrexia seen, although some of the patients said that they had fever on the evening after the injection.

2 DESTRUCTION OF TOXINS IN THE BOWEL

The administration of permanganates to neutralize the toxin in the intestine was tried in all cases.

The routine was to give all cases seen 10 or 12 two-grain pills of permanganate of potash with instructions that one was to be taken every $\frac{1}{4}$ hour for 8 doses and the remainder at half hour intervals if the stools were not already green.

On the next day 8 more pills were given to be taken at $\frac{1}{2}$ hour intervals and in bad cases the patients also received pills on the 3rd day. In children 6—8 pills were given on the first day and 4—6 on the second.

In the abstract of the cases it will be seen that of the 69 cases treated, 31 did not require saline injection.

These were cases who were seen in the early stages before collapse had set in and who were at once put on the permanganate treatment in the doses mentioned above.

3 PREVENTION OF RECURRENCE OF COLLAPSE AND SUPPRESSION OF URINE

If collapse recurred, another injection of saline was given, and, whenever possible, hourly rectal injections of saline. In such cases adrenalin and pituitrin were very useful. If suppression persisted after the first injection, another intravenous injection was given and rectal injections if possible. This, combined with hot fomentations and cupping over the kidneys, usually started a flow of urine.

As regards diet the friends were told to give nothing but plain water or barley water for the first few days, but among the villagers these instructions were seldom carried out.

4 TREATMENT OF COMPLICATIONS

The commonest complication seen in these cases was uræmia, and as is pointed out by Rogers, this was commonest in two classes of patients. (a) Those seen inside the first 12 hours of a severe attack with a long collapse stage, which was tided over with difficulty. (b) Those admitted with suppression 48 hours or more after the onset of a mild attack and who had not seen a medical man. To these I think may be added a third class (c) patients who had been given morphia or opium. There were four cases (Nos 27, 33, 34, and 38), who had been given morphia before being seen by me, and out of these three died and the fourth was only saved with great difficulty.

The treatment of these patients after the collapse had been tided over was to give injections of isotonic saline either intravenously, subcutaneously or per rectum.

At the same time injections of digitalin, strychnine, adrenalin, and pituitrin were tried.

Quantities of fluid were given by the mouth and hot fomentations and cupping tried over the kidneys.

In case No 33, thirty-one pints of saline were given without effect. The patient gradually became more and more comatose and died.

Some points in the technique of intravenous injection

The few points given below were found to greatly facilitate and quicken the finding of the vein and the insertion of the cannula.

In treating cases in the villages, the method used was to take a quantity of sterile hypertonic saline in large bottles and the injection apparatus already sterilized in a portable sterilizer. These were packed in a large box with some sterile wool, antiseptics, basins, etc.

As soon as a case requiring injection was seen, the procedure was to place a noosed bandage over the upper arm to obstruct the venous flow. Then massage of the forearm from below upward caused the veins of the elbow to become apparent. A vein suitable for injection was chosen and the skin over it painted with tincture of iodine.

It was found that the incision was best made parallel to and slightly to one side of the vein. In this way the danger of cutting the vein was avoided, thus doing away with the difficulty one has of isolating the vein when the area of operation has become covered with blood.

The skin is then drawn aside and the vein exposed. As soon as the vein is seen, the bandage is removed and a clear area of operation is obtained, as little or no bleeding occurs in collapsed cases if the bandage is removed at once and if the vein has not been cut.

The vein is then dissected free, and a pair of dissecting forceps is passed under it with the edge of the blades uppermost, these are left in position during the whole operation. The advantage of this is that, when the blades spring open, the vein is raised out of the wound and lies free resting on the two edges of the forceps. One blade stops the blood in the lower portion of the vein, while the other blade stops that in the upper part, thus doing away with the necessity of a ligature. An oblique cut going half way through the vein is then made with a sharp pair of scissors and the cannula introduced.

At first one or two cases were injected by using a sharp needle inserted directly into the vein, but in the later cases this was abandoned, as it was found much easier and quicker to cut down and expose the vein, especially in collapsed cases. With practice it was found that an incision $\frac{1}{2}$ — $\frac{3}{4}$ inch long afforded ample room, and that the whole proceeding could be completed in about two minutes. No difficulty was experienced in getting the cannula into the veins of persons over 10 years of age if attention was paid to the above points.

Usually in about four minutes after the patient was first seen, the saline infusion had commenced, and in some cases even less.

In children the internal saphenous vein was usually used. The saline was injected at a temperature of about 99 F. in most cases, but in cases with very subnormal temperatures a solution at 100 F. or more was used.

The saline in the bottles was at two different temperatures, one lot being very hot while the temperature of the other lot was about normal. The bottles of hot saline were placed in the sunshine when not in use so that they might not cool down. By mixing these two solutions it was possible to keep the temperature of the injected saline as high as was considered necessary.

When the injection was finished the wound was painted with tincture of iodine and, if time was

available one stitch was put in the skin, but in a large number of cases, only a pad and bandage was used. In no case was the vein tied either above or below, and no ill effects were observed from this practice.

The above points which I found useful may be summarised as follows —

- (1) Sharp knives and scissors are essential
- (2) The noose of bandage is very easily put on or taken off without interfering with the operator
- (3) The skin incision should be made alongside and parallel to, not over the vein
- (4) The use of dissecting forceps to hold up the vein does away with the need of a ligature
- (5) The use of hot and cold solutions of saline

Summary of the cases

The 69 cases recorded in this article were not selected patients. Every case is included who consented to be treated by me no matter at what stage of the disease they were seen.

From the attached table it will be seen that the patients varied in age from the very young to the very old, and the period of disease from a few hours to six days.

The cases treated may be divided into two classes. (A) Those who never developed signs indicating injection. (B) Those whose condition when first seen indicated injection or who later developed such a condition.

A Non-injected cases

When a case was seen whose clinical signs pointed to cholera in an early stage but whose condition did not indicate injection, he was immediately put on permanganate treatment like the injected cases and if necessary strychnine and adrenalin were given at the same time. Some of the cases so treated afterwards needed injection, but 31 of the cases did not require it.

Among the cases treated without injection there was only one death. This occurred in a man who collapsed in the night and died before the morning visit.

Some of these cases might possibly have been classed as cases of choleraic diarrhoea, but they all had clinical symptoms suggestive of cholera in an early stage and, in most cases, either lived in the same house as a cholera patient or had been in contact with one.

B Injected cases

The 38 injected cases were all severe and a summary of their histories, symptoms, and treatment is given in the attached table.

These cases ranged in age from 2½ to 60 years, and were seen for the first time at all stages of the disease up to the sixth day. Under the heading "Duration of Symptoms" is given the time that the patient was said to have been ill before being seen.

TABLE OF CHOLERA CASES
Treated with hypertonic saline and permanganate of potash (Rogers' Method)

| Serial No | Age and Sex | Duration of Symptoms | Pulse | Temp | Condition | Restlessness and Cyanosis | Stools | Vomits | CRAMPS | | Suppression | Saline (pints) | Result | REMARKS |
|-----------|-------------|----------------------|------------|------|------------------|---------------------------|-------------|-------------|-------------|-------------|-------------|----------------|-----------------|--|
| | | | | | | | | | Abdomen | Legs | | | | |
| 1 | 60 ♀ | 14 hours | 132 feeble | 95.4 | Collapse extreme | Present | 30 or 40 | 6 or 8 | Yes | Yes | From onset | 3 | Cured | Convalescence rather slow |
| 2 | 5 ♂ | 8 hours | Pulseless | 96.4 | Collapse | Both present | 10 or 15 | 8 or 10 | Marked | Slight | From onset | 2 | Cured | |
| 3 | 4 ♀ | 3 days | 120 weak | 96 | Dull | Both marked | ? | ? | Yes | No | 48 hours | 1½ | Cured | Copious drinks and stimulants given |
| 4 | 13 ♂ | 3rd day | Pulseless | 95 | Comatose | Absent | Innumerable | Innumerable | Yes | Yes | From onset | 3 | Died 8th day | Had large abscess on thigh before treatment. Strychnine digitalin and adrenalin given. Coma and suppression passed off but he died of pyæmia on 10th day |
| 5 | 16 ♀ | 12 hours | 130 bad | 97.2 | Dull | Present | Numerous | Numerous | Yes | Yes | Yes | 2 | Cured | |
| 6 | 4 ♀ | 26 hours | 150 (??) | 96.2 | Comatose | Present | Countless | Countless | Yes | Yes | From onset | 3 | Cured | A very bad case which remained semi-comatose for 4 days and passed very little urine for 3 days. Injections of strychnine and digitalin. Hot applications over kidneys, etc |
| 7 | 12 ♂ | 3 days | Pulseless | 95 | Deep coma | Absent | ? | ? | Yes | Yes | Yes | 3 | Died 11th day | On the injection of another 4 pints a little urine was passed and coma passed off almost completely. Died of asthenia |
| 8 | 14 ♂ | 8 hours | 130 weak | 96.1 | Collapse extreme | Very restless Cyanosis | 12 or 14 | 12 or 14 | Yes | Yes | Since onset | 2 | Cured | This case was seen when the saline solution was almost finished so only 2 pints could be given. Emelin, strychnine and digitalin were injected |
| 9 | 15 ♂ | 36 hours | Pulseless | 94.8 | Collapse | Slight | 20 | 8 or 10 | Yes | Yes | Yes | 2½ | Cured | |
| 10 | 8 ♀ | 24 hours | 120 bad | 96.8 | Collapse slight | Absent | 10 or 12 | 5 or 6 | Slight | No | No | 1 | | |
| 11 | 28 ♂ | 6 hours | Pulseless | ? | Collapse extreme | Marked | 8 | 4 | Severe | Severe | Since onset | 2½ | Cured | No more saline available. Emelin, strychnine and digitalin |
| 12 | 30 ♂ | 5½ hours | Pulseless | 95.2 | Dull | Moderate | 4 | ? | Very severe | Yes | From onset | 3½ | Died (26 hours) | Extreme collapse 4 hours later 4 pints saline and adrenalin. Ten hours later 4½ pints, and pituitin injection. Saline 1 pint hourly from admission to hospital. Strychnine and digitalin |
| 13 | 31 ♂ | 3 hours | Pulseless | 95 | Extreme collapse | Marked | 8 | 12 | Very severe | Very severe | Since onset | 3½ | Died 5th day | In all 16 pints were injected intravenously. Saline hourly per rectum. Hot applications over kidneys. Died of uremia |

[illegible]

TABLE OF CHOLERA CASES — (Contd.)

| Serial No | Age and Sex | Duration of Symptoms | Pulse | Temp | Condition | Restlessness and Cyanosis | Stools | Vomits | CRAMPS | | Suppression | Saline (pints) | Result | REMARKS |
|-----------|-------------|----------------------|-----------|------|------------------|---------------------------|-----------|-----------|---------|------|-------------|----------------|--------------|---|
| | | | | | | | | | Abdomen | Legs | | | | |
| 32 | 23 ♂ | 2 hours | Weak | 96 | Moderately good | Restless | 4 | 6 | No | Yes | Yes | 5 | Cured | |
| 33 | 30 ♂ | 5 hours | Pulseless | 94 | Collapse extreme | Marked | 4 | 8 | Yes | Yes | From onset | 4 | Died 4th day | Had morphia before treatment Had 31 pints of saline intravenously and 2 pints subcutaneously Died of uræmia |
| 34 | 23 ♂ | 6 hours | Pulseless | 96.3 | Collapse extreme | Cyanosis | 4 | 4 | Yes | Yes | From onset | 4 | Died 6th day | Also had morphia Had 19 pints into veins and 2 subcutaneously Died of uræmia |
| 35 | 18 ♂ | 12 hours | Weak | 95.2 | Dull | No | 5 | 4 | Yes | Yes | Yes | 4 | Cured | |
| 36 | 24 ♂ | 5 hours | 100 weak | 96 | Dull | No | 4 | 3 | Yes | Yes | Yes | 4 | Cured | |
| 37 | 60 ♂ | 18 hours | Pulseless | 96.2 | Collapse | Marked | Countless | Countless | Yes | Yes | From onset | 5 | Cured | 4 more pints given later Strychnine, digitalin, emetin, etc |
| 38 | 24 ♂ | 10 hours | 140 bad | 96.6 | Collapse extreme | Marked | 4 | 3 | No | Yes | From onset | 1½ | Cured | Very bad case Saline subcutaneously and per rectum given Digitalin, strychnine adrenalin, pituitrin |

As regards temperature in most cases it was impossible to get the mercury to rise in the thermometer. The temperature was always taken in the axilla.

The condition of some cases is described as 'dull.' These were usually cases who seemed to make no effort to combat the disease.

This condition might possibly have been due to the effects of the cholera toxin on the brain.

As is usual among natives it was very hard to get a clear history especially as regards the number of times vomiting and diarrhoea had occurred.

By reference to the attached table it will be seen that 14 deaths occurred amongst these cases.

Seven deaths were due to uræmia of which one case (No 16) had had suppression for 4 days when first seen and three cases (Nos 27, 30, 34), had been injected with morphia before my arrival.

Two cases, died in the collapse stage, of which one case (No 18), a boy aged 10 years, while being injected began to have difficulty in breathing although the solution was going in very slowly. On examination the thymus gland greatly enlarged was seen bulging above the sternum. Although strychnine was injected and only sufficient saline was given to counteract the collapse, the patient died before the next visit. The other case (No 12)

received in all 12 pints of saline intravenously during the 20 hours before his death, but in spite of this and hourly rectal salines he was in a collapsed state again in a short time after each injection.

Two cases died of asthenia. These were cases which were seen on the 31st and 6th days respectively.

One case (No 4) had a large septic abscess on the thigh before he took ill. He later developed pyæmia and died on the 8th day.

The other death was that of a man aged 53 with very thick arteries who died suddenly on the 3rd day.

The mortality amongst these 38 severe cases was therefore 37% as compared with 83.4% amongst all untreated cases during the same period.

During the year 1913 I treated three other cases of cholera with no death in the Kohat Cantonment. This makes a total of 72 cases treated with 79.2% of recoveries.

I wish to express my indebtedness to Major R. H. Price, I.M.S., and to Lieut. N. C. Kapur, I.M.S., who took over charge of the after-treatment of a number of these cases when I was called away from Kohat. My thanks are also due to Sub-Assistant Surgeon John D. Baily, I.M.S., who rendered great assistance both in the preparation of the saline and the treatment of the cases.

"MORPHINE INJECTOR'S SEPTICÆMIA" ("WHITMORE'S DISEASE")

By H H G KNAPP, M A, M D (Oxon), D T. M & H
(Camb),

MAJOR, I M S,

Rangoon

IN 1912, Major Whitmore, I M S, first described* the pathological anatomy and ætiology of a disease that is met with fairly frequently in Rangoon. It was provisionally termed by him "Morphine Injector's Septicæmia." Since his account appeared it might have been expected that observers in other parts of India and elsewhere would have recorded cases, but the only reference I have come across is a brief note in Castellani's "Text-book," where it is called "Whitmore's Fever," and is said to resemble glanders.

My object in writing this note is to direct the attention of practitioners in India and elsewhere to this disease, in order that it may be further investigated, since it seems improbable that it is confined to Rangoon. The habit of injecting morphine is doubtless not uncommon in Calcutta, Bombay, and other large towns, and the disease should be met with in these centres.

Clinically, it is an obscure condition, and the diagnosis is generally made only at the autopsy. I give a brief history of a recent case that was in the hospital of the Rangoon Jail.

P T, a Burman of 28, cultivator. Admitted to jail on 12th September in apparently good health. He remained well till five months after admission, when he complained of cough and fever. On admission to hospital, on 15th February, temperature was $101\frac{1}{2}$, pulse 98, respiration 26. There was cough with pain. Tongue furred. Slight ulceration of tonsils noted. Base of left lung was dull, with loss of breath-sounds and diminished fremitus. Spleen distinctly palpable. Examination of stools, blood, and sputum was negative. Hæmoglobin 75 per cent. Urine normal.

19th February, temperature normal. General condition as before. Physical signs unaltered. Leucocyte count gave—Lymphocytes 21, large mononuclears 3, polynuclears 72, eosinophils 3, and mast cells 1. From the 20th temperature rose, and there was an irregular pyrexia (99° to 101°) for 32 days. The physical signs did not alter, but the general condition became gradually worse. A diagnosis of chronic tubercular pleurisy was made. About 23rd March the fever became higher and more regular, with a definite evening rise. The percentage of polymorphonuclears fell to 60, and Hgb to 50 per cent. About 8th April fever became more irregular, and continued so till death. Condition becoming worse, physical

signs as before. 18th April, blood count, leucocytes 6,900, red corpuscle 3,365,000, Hgb 50 per cent, colour index 74. 28th April, leucocytes, erythrocytes, and hæmoglobin all diminished. Polynuclears rose to 76 per cent. The Arneeth count gave a moderate left shift (index 57.6). He sank and died on 5th May after an illness of about twelve weeks.

Autopsy—Body wasted. No marks of morphine injections. *Right lung* extensive pleural adhesions, not very recent. Some congestion of base. The organ contained numerous areas of a grey yellow colour, of fairly firm consistency, irregular in outline, varying in size from two or three lines to $\frac{1}{2}$ inch across. These areas had generally a zone of injection around them. *Left lung* presented similar appearances. Pleura were adherent to the diaphragm, and this in turn to the thickened capsule of the spleen, between spleen and diaphragm was a collection of curdy purulent matter. Spleen weighed 39 oz., and contained several caseous nodules and foci of suppuration. Cloudy swelling of liver, there was a small abscess, size of half a walnut, in left lobe.

The lungs and spleen were sent to Capt Owens, I M S, Chemical Examiner, who very kindly examined them. From these organs he cultivated a motile bacillus that gave the cultural characters of that described by Whitmore.

Since 1910 eleven instances of this disease have been met with in the Rangoon Jail. From a consideration of them the following facts emerge.

Ætiology—It occurs in adult males of the poorer class. In 9 out of the 11 the patient was an habitual morphine injector. The case above described was an exception in regard to this. Race and occupation indifferent.

Onset and Course—It is an insidious disease, difficult to diagnose, especially as it occurs chiefly in broken-down morphine and cocaine victims. In one case the patient was not taken ill for five months after admission to prison, in two cases the interval was nearly a year. In others the interval was short, or they were ill when first admitted.

General malaise and fever are early symptoms. The fever is usually irregular, generally not very high. Remissions are common. There may be rigors.

The duration varies from one to three months. Generally, there are pulmonary signs and symptoms, such as cough, subacute bronchitis, with patchy dulness, especially at the bases and crepitations. Friction was noted in some cases.

In two instances the spleen was palpable. Abscess formation was met with twice, they may be subcutaneous or intramuscular. Œdema of an arm occurred once, of the legs, several times. Diarrhoea was seen sometimes. Examination of the blood yielded nothing of value.

* (a) *Indian Medical Gazette*, July, 1912.

(b) *British Medical Journal*, December, 1912.

Pathological Anatomy—The lesions are highly characteristic, and consist of the "nodules" in the lungs already described. They were seen in 10 of the 11 cases, and resembled areas of broncho-pneumonia. They are unlike anything I have seen in any other disease. These peculiar lesions are not confined to the lungs, nodules exactly like them were seen in the liver in three instances, and in the kidney in one. In one case the lesions were confined to the liver, being absent from the lungs.

Small abscesses, sometimes larger ones were found several times in the lungs, liver, and spleen. The spleen was enlarged in four cases. Suppurating mesenteric glands, ulceration of the sigmoid, and intra-muscular abscesses were met with in different cases. Endocardial petechiae were noted once.

Commentary—It is clear that there is a general similarity between this disease and glanders, both in regard to symptoms and pathology. Glanders is (in England, at least) a rare infection in man, and it is not altogether easy to find a really satisfactory description of it, from the clinical and pathological standpoints, in the standard text-books. This Rangoon infection, however, seems to be differentiated from glanders in several points, such as its ætiology, since it has no relation to the horse, but has a very close relation to the hypodermic syringe. Again, in human glanders there are very frequently various lesions of the skin, such as erysipelatous rashes, bullæ, pustules, etc. In none of my cases were there skin lesions of this sort. The characteristic nodules that may occur in the liver and kidney have not, to my knowledge been described in glanders.

Lastly, the Rangoon infection has been shown by Whitmore to be caused by a bacillus with certain definite morphological and cultural characters that distinguish it from *B. mallei*.

In short, the balance of evidence favours the view that this Rangoon disease is a separate and distinct infection. But even if further investigation fail to establish this contention, it may be worth while putting this case on record, since clinical accounts of glanders are rather rare. It is curious that this disease is not oftener described in the medical journals of India, where it is generally believed to be fairly common.

AN OUTBREAK OF ANTHRAX *

By DR MCCOMBIE,

President, Assam Branch of B. M. A.

As outbreaks of anthrax are not very common it was thought that a few notes on the subject might be interesting.

The paper deals with two outbreaks, one which occurred in 1901, and the other in 1914, both on the same garden, and both associated with anthrax epidemic among the cattle. It also includes three sporadic cases from another garden.

For the notes of the 1901 epidemic I am indebted to Hospital Assistant B. C. Dass of Bahjan who had carefully preserved them, and has also given me much assistance in collating the facts and doing microscopic examinations during the last outbreak.

In 1901 the epidemic began in June, and up to the end of August, when it ended, there were 18 cases and 6 deaths.

In 1914 it lasted from September to December with 30 cases and 7 deaths.

Including the other 3 cases the table shows in all 57 cases with 13 deaths, 25.4 per cent.

Nine of these were cases of internal anthrax, all of which died, leaving 42 cases of malignant pustule, of which 4 died, a mortality of 9.5 per cent for both years.

The mortality in 1901 was 14.2 per cent, but in this year was only half of this, 7.1 per cent. This I am inclined to attribute to the method of treatment, which, tried tentatively towards the end of the outbreak in 1901, has been more thoroughly carried out from the commencement of the epidemic this year.

Of its association with the cattle epidemic there can be no doubt. The small chart* showing the number of dead cattle reported and the number of coolies infected week by week from September to December, 1914, shows the similarity of the curves, and the fact was established in most cases of either cutting up or eating cattle dead of the disease, the former giving rise to malignant pustule, and the latter to internal anthrax, while some suffered from both.

It by no means follows that eating anthrax cows will be followed by anthrax in the coolie. In one Utiya line a cow died one evening, and it was directed to remain unburied until microscopic examination had established the cause of death. One blood slide showed enormous numbers of anthrax bacilli, but next morning the cow had disappeared, and was reported to be in pieces, all over the line. No case of anthrax came from that line, except a malignant pustule three weeks later.

On the other hand, cases frequently occur together in one house after eating infected flesh or in different houses traced to eating the same carcase. Thus, cases 1 to 11 of 1914 all admit sharing two cows dead of an unknown cause, while of these cases 4, 5, 10, and 11 were in the same family. Cases 20 and 21 not related had pieces of the same buffalo. Instances like this are common.

* From Transactions, Assam Branch, B. M. A.

* Not reproduced.

One may also note that all the cases except one occurred in meat-eating castes, our friends the Santhals heading the list with 29. The only exception was the hospital cook, who had a malignant pustule, and who may have been accidentally infected from cases in the hospital.

The age of the cases runs from 3 to 50, but were mostly adults.

Curiously enough only one female was affected and she internally. Babu B. C. Dass explains this by the fact that the men do the cutting of the raw flesh, while the small boys help to carry home the spoils, and the men likewise eat the lion's share of the meat. It is quite easy to understand that if the meat has been kept until spoils form, it would require very thorough cooking to render it sterile.

Symptoms—The forms of anthrax described are, as you are aware—

A *External*—Including (a) malignant pustule and (b) malignant oedema

B *Internal*—described in two forms—

(a) Intestinal

(b) Pulmonary (wool sorter's disease)

The pulmonary form one would obviously not expect to meet under conditions obtaining in Assam.

Malignant oedema is practically the same as the tremendous inflammatory oedema, which frequently accompanies a malignant pustule, but without shewing any definite focal lesion I have seen, but have no instance in my notes. They are usually fatal.

I shall describe the malignant pustule, which formed 82 per cent of my cases, and the intestinal forms, which composed the balance. Some of the latter had malignant pustule as well.

With regard to *malignant pustule* the situation of the lesion was as follows—

Out of 42 cases 21 or 50 per cent were in the upper extremity (mostly on the forearm) of which 3 or 14 per cent died.

9 on the lower limbs with no deaths,

6 on the head, neck, and face with 1 death or 16 per cent,

5 on the body with no deaths,

1 had two pustules on the buttock and arm.

Of these 42 cases and 4 deaths, two died without treatment, giving us 40 cases of malignant pustule under treatment with 2 deaths—a mortality of 5 per cent, which is quite good.

The course of the pustules was the usual textbook one, and I pass round charts of typical cases.

The incubation period as far as could be ascertained was from 3—6 days after handling the infected flesh.

One attack apparently does not establish a permanent immunity as one man who had a

malignant pustule in 1901, died of internal anthrax in 1914.

The pustule begins with an itching, burning sensation at a spot, which soon becomes livid red pupule and vesiculates, and forms a rough black central slough, usually surrounded by a zone of small vesicles or pustules. It is early surrounded by an area of brawny inflammatory oedema, which varies greatly in extent according to the severity of the attack. Neighbouring glands are inflamed and the temperature usually rises on the second day to between 102° and 104° with symptoms of constitutional disturbance, and in the majority of cases remains high for two or three days with slight remissions, and then rapidly falls to normal. In fatal cases the temperature does not fall and symptoms of toxæmia develop and are rapidly fatal. Two cases of mine, in whom the temperature fell to normal and were apparently doing well, died of syncope two or three days later.

The cases vary much in severity and one sees a typical pustule, with only slight swelling and no fever, which rapidly heal up.

The symptoms of internal anthrax are given in the text-books as those of intense poisoning: chill, fever, vomiting, diarrhoea, pains and later dyspnoea, cyanosis, and restlessness.

In the cases I saw, although *post-mortem* showed intestinal lesions, vomiting was rare and diarrhoea not noted.

Case 9 was a woman who was carried into hospital in a restless condition, saying she had had fever during the night. Her appearance was very anxious, temperature subnormal, body covered with perspiration, and she complained of pain in the abdomen and over the cardiac area. Pulse irregular and small, voice good.

She died suddenly within half an hour. A routine blood slide shewed anthrax bacilli.

Case 29, a man, came in with high fever, complained of pain in the abdomen, and said he had vomited several times. There was much distension and flatulence. He was dead in 1½ hours. There were no anthrax bacilli in his blood, but *post-mortem* proved it to be anthrax.

Cases died quite suddenly in the lines, and the only history one got frequently was that they had been feeling ill the day before, and got fever during the night and died.

There is nothing distinctive about the symptoms in my experience.

DIAGNOSIS

The *malignant pustule*, once one has seen them, gives no difficulty in diagnosis, and if the pustule is not typical the intense brawny infiltration all around gives one the clue and the bacilli are easily found under the microscope in a smear of the serum from a pustule.

The *internal cases* are very puzzling, if one is not expecting them. It is one of the causes of so-called sudden death in the lines, *vide* case 21. When seen in the collapse stage they can hardly be diagnosed clinically. Without a blood examination they may be called high fever, and case 29 suggested acute obstruction.

Case 29 shewed no bacilli in the blood, but the bacilli are usually quite easily found, so a routine blood examination should always be done.

The *post-mortem*, however, always clears up the diagnosis, and a spleen smear is always swarming with bacilli.

The *post-mortem* findings are fairly distinctive, although in 1901, when the second of these mysterious deaths had occurred, the diagnosis made *post-mortem* by the Civil Surgeon (in the absence of a microscope) was septicæmia of unknown origin, and only on collateral evidence was anthrax subsequently suspected and found microscopically in subsequent cases.

Briefly one finds on opening the abdomen a large quantity of free straw coloured fluid, with sometimes flakes of lymph all over the coils of intestine. There is a peculiar jelly-like œdema of the mesentery, and the mesenteric glands are large, swollen, and hæmorrhagic. The peritoneum covering the bowel is congested and may shew petechiæ, but the typical lesion appears to be numerous submucous hæmorrhages into the wall of the bowel, which may be very extensive and destroy the mucous membrane, and are easily seen by holding up the bowel to the light, when they appear like black patches through the empty intestine.

The spleen is congested, dark, swollen, and soft, and may be diffuent. It swarms with bacilli.

The heart blood is thick and tarry, and the lungs and pleura are congested and may shew petechial hæmorrhages.

TREATMENT

The treatment of the *internal cases* is hopeless, although recoveries have been reported with intravenous injections of Selavo's anti-anthrax serum. I have tried carbolic internally in large doses, with big doses of strychnine, with no apparent results.

For *malignant pustule* excision and actual cautery have their advocates, but the former is liable to be followed by a general infection and the latter is difficult to carry out in most hospitals.

Selavo's serum with or without excision is strongly recommended at home.

Another treatment recommended, which has the advantage of being simple, is cauterization with solid caustic potash. A series of 75 cases with four deaths is reported, and it certainly seems worthy of trial and without the disadvantages of the treatment now to be described.

My practice is as follows —

In mild cases without fever, or cases seen after the fever has subsided and obviously clearing up, almost any treatment suffices, touching with pure carbolic and antiseptic compresses, or a crucial incision with the application of pure carbolic in the moderately severe cases.

In bad cases with high fever and much inflammatory œdema the following method gives me excellent results, and no time should be lost in carrying it out. All around and underneath the pustule 50 per cent carbolic acid is injected with a hypodermic needle at close intervals. The idea of the treatment being that the pustule is shut off from the circulation by a zone of carbolized slough, which seems to effectually prevent the infection becoming generalized.

It is not very painful and is a method available in any hospital, but it has the disadvantage of forming a big slough which has to be separated off, which takes about a week or ten days and about three weeks to heal.

I have not lost a case in which this has been done properly.

One must now pass to the management of an outbreak—the *prophylaxis*, and it is obvious that the cattle epidemic must be dealt with vigorously, when the cases among the coolies will cease automatically, except perhaps for an occasional sporadic case.

The assistance of the Veterinary Department should be called in, but as it may not always be readily available, and one may be called upon in this country to give an opinion, a few elementary facts may be noted about the disease in horses and cattle.

I am indebted for most of this information to Mr W. Harris, Superintendent, Civil Veterinary Department, Assam, whose permission I have asked to quote his letters on the subject.

The symptoms in horses and cattle are very acute, swelling of the throat and high fever 104° to 106° in the rectum. There may be only high fever and no swelling, and very commonly cattle die suddenly during the night. In any case the course of the disease is short and usually fatal.

In any suspicious case the diagnosis may be rapidly made after death with the microscope by cutting the ear and obtaining a blood slide, which shews the typical bacilli.

With regard to treatment for horses, which is curiously like my own for coolies, he says — "Dissolve 1 drachm of acid carbolic in 4 ozs of water and inject into the swelling and all around the neighbourhood in the side of the neck. Do this every 4 hours night and day for the first 30 hours and then every 6 hours until the swelling subsides."

No time should be lost over individual cases when the diagnosis has been made, but the Government should be at once requested to send a "Vet" to inoculate all the cattle within the area

With regard to inoculation Mr Harris writes — "The period of immunity varies greatly, due to susceptibility of the animal, and virulence of the organism at the time, so anything from three to eight weeks. You should have your ponies re-inoculated after a month with double doses, which would carry you over three months"

With regard to the carrying of infection he says — "The risk to other ponies on the polo ground is very slight (i.e., of ponies coming from an infected garden and apparently healthy) practically nil, contaminated earth *might* be carried on the ponies' feet, arrangements might be made to wash them before they leave"

It is not contagious, animals becoming infected by eating grass or drinking water containing spores. The infection is kept alive and spread by means of the spores, which are very resistant and will survive for years in the soil, and one should remember that spores are only formed when blood or discharge containing the bacilli escapes and is exposed to drying, sunlight, or adverse circumstances. Hence the carcass should not be opened or cut—the bacilli are aerobic and if deprived of air soon die, especially in contact with the anaerobic organisms of putrefaction in the carcass

Mr Harris directs — "All carcasses and material stained by blood or discharge from infected animals or carcasses should be burnt or buried deeply after sprinkling with lime (unslaked) or disinfectants"

The most important thing on a garden is to get early intimation of cattle deaths to prevent coolies getting the meat for consumption

At Balijan during the epidemic the measures taken were —

1 Lane chokidars had very strict orders about reporting cattle deaths at once

2 A special Babu was deputed to see that every cow was buried in quicklime at least six feet deep, and as near as possible to the place of death

3 If the carcass had to be removed, its head was tied in a sack and the rectum plugged to prevent the escape of discharges

4 Inoculation was carried out, the first lot being done on the 16th October, and the remainder on the 5th November

With these measures the epidemic soon died out and the cases among the coolies ceased, although we have had a slight recrudescence at the end of December which if it continues, will necessitate a re-inoculation of all the cattle.

| | BALIJAN | | | | SEAL KOTTEE | | TOTAL | |
|----------------------|---------|--------|-------|--------|-------------|--------|-------|----------|
| | 1901 | | 1911 | | | | | |
| | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths |
| INTERNAL | 4 | 4 | 5 | 5 | | | 9 | 9* |
| | 100% | | 100% | | | | 100% | |
| EXTERNAL— | | | | | | | | |
| Upper limb | 6 | 1 | 13 | 2 | 2 | 0 | 21 | 3† 14 2% |
| Head, neck, and face | 1 | 1 | 5 | 0 | 0 | 0 | 6 | 1‡ 16 6% |
| Body | 1 | 0 | 3 | 0 | 1 | 0 | 5 | 0 |
| Lower limb | 5 | 0 | 4 | 0 | 0 | 0 | 9 | 0 |
| Buttock and arm | 1 | 0 | | | | | | |
| Total External | 14 | 2 | 25 | 2 | 3 | 0 | 41 | 4 |
| | 14 2% | | 8 0% | | 7 1% | | 9 5% | |
| GRAND TOTAL | 18 | 6 | 30 | 7 | 3 | 0 | 51 | 13§ |
| | 33% | | 23 3% | | | | 25 4% | |

* Practically all died before or shortly after admission

† Of these, 2 died without treatment and 1 died of syncope

‡ Died of syncope 5 days after admission apparently getting well

§ 11 of these died without treatment of which 9 were internal, leaving 40 cases of malignant pustule with 2 deaths = 5 per cent mortality in treated cases

PARTICULARS OF CASTE

| | |
|------------|-------------------------------|
| Santhals | 29 |
| Munda | 1 |
| Chamai | 4 |
| Bhuiya | 2 |
| Bawri | 1 |
| Sanda | 6 |
| Dombo | 3 |
| Bhumij | 1 |
| Jatob Dora | 1 |
| Panika | 1 |
| Kola | 1 (Hospital cook had pustule) |
| Tanti | 1 (" sweeper " ") |

TOTAL 51

AGES— 3 to 50 years

11 children below 12, of which 2 were internal

SEX— 1 Female

50 Males

TOTAL 51

Discussion—Several members said they had seen cases with a double pustule, and that carbolic acid was the usual local treatment. Major Leventon said that in his experience sloughing would occur with carbolic 1 in 20. No member had found the bacillus in the general circulation in cases of malignant pustule. Dr Winchester mentioned an outbreak in which 30 people had partaken of anthrax infected meat and 15 only of these were infected.

A YEAR'S SURGERY AT THE SECUNDER- ABAD CIVIL HOSPITAL

BY C H BRODRIBB, M B, B S (Iond),
Medical Officer

A LIST OF IMPORTANT MAJOR OPERATIONS

| | |
|--|----|
| Freeing the Musculo Spiral Nerve from Callus | 1 |
| Trephining | 2 |
| Excision of Elbow | 1 |
| Laminectomy | 1 |
| Nasal Fibroma | 1 |
| Thyroidectomy | 1 |
| Excision of Breast | 7 |
| Various Laparotomies | 13 |
| Pyloroplasty | 2 |
| Gastrojejunostomy | 14 |
| Enterectomy (Intussusception) | 1 |
| For Appendicitis | 22 |
| Intestinal Anastomosis | 1 |
| Fæcal Fistula | 2 |
| Strangulated Hernia | 6 |
| Radical Hernia Operations | 17 |
| Omentopexy | 2 |
| Liver Abscess | 3 |
| Cholecystotomy | 1 |
| Cholecystotomy | 1 |
| Subphrenic Abscess | 1 |
| Nephrotomy | 1 |
| Suprapubic cystotomy | 2 |
| " Lithotomy | 2 |
| Lithotrity | 2 |
| Urethrotomies | 15 |
| Elephantiasis | 3 |
| Ovariectomy | 6 |
| Extra-uterine-gestation | 2 |
| Salpingectomy | 15 |
| Hysterectomy | 2 |
| Hysteropexy | 10 |
| Cæsarian Section | 2 |
| Removal of Lymphatic Glands | 44 |
| Various Tumours | 14 |
| Cataracts | 17 |
| Excision of Lacrymal Sac | 3 |
| Radical Cure Mastoid | 3 |
| Intestinal Obstruction | 2 |
| Pelvic Abscess | 6 |

Musculo Spiral Paralysis—A man was admitted on 17th April, 1914, for complete musculo spiral paralysis, after a fracture of the right humerus, due to the nerve being embedded in callus. The nerve was freed from callus and protected by removing a part of the internal saphenous vein which was sutured round the nerve. The patient had already recovered sensation and motion of the affected limb when he left the hospital.

Fracture of the Skull—An European was admitted with fracture of the vault, a triangular piece being depressed. He was drowsy on admission, one corner of the depressed triangle involved the superior longitudinal sinus, two trephine holes were made one over the sinus which was plugged to control hæmorrhage another at the other end of the depressed portion. The bone between the two was then entirely removed. An attempt to remove the plugging on the third day failed for recurrence

of bleeding, but it was successfully removed on the 7th day, the patient healing by first intention and making an uninterrupted recovery.

Laminectomy—L (O C) M 20, admitted on 2nd August, 1914, with a history of injury to his back, had several bruises on his back, and complained of severe pain in his spine, showed paresis of lower limbs, sensation slightly impaired, unable to pass urine. Examination showed undue mobility of the third and fourth lumbar spines. Diagnosed fracture dislocation of the spine, and operated on 4th August, 1914. Operation showed complete dislocation between the fourth and fifth lumbar vertebræ with fracture of the spinous processes. After partly removing the articular processes by leverage and extension the dislocation was reduced. After operation the patient's condition became worse with increase in paralysis of sphincters and lower limbs. A month later, however, symptoms began to improve, he regained power over his sphincters and some movements of the lower limbs. This gradually improved till he was discharged and much relieved on crutches a month later. He has failed to report himself since.

Nasal Fibroma is of interest from its rarity and size. When removed by detaching the ala nasi and excising from its attachments to the inferior tribuned bone, it was found to be $3\frac{1}{2}$ inches long by $1\frac{3}{4}$ broad.

Thyroidectomy—Patient admitted for inability to swallow. The right lobe of the thyroid was very large, stretching from the mastoid to below the clavicle and compressing the œsophagus. The right lobe and isthmus were removed through an extensive collar incision. Case healed by first intention and was relieved of all symptoms.

Excision of Breast for Cancer—Have been in each case complete operations with removal of both pectoral muscles except the clavicular part of the major and thorough cleaning of the axilla. One case recurred, no others have returned with recurrence. Complete closure of the wound was practicable in all cases but one, and arm movements were in all cases good, as the result of avoiding any incision in the axilla.

Gastro-enterostomies—Of these fourteen have been done during the year. Two out of the fourteen died, one from an attack of severe dysentery on eighteenth day after operation and one as the result of food (*chappates*, etc) smuggled in by friends shortly after the operation. All other cases except one were discharged cured. The exception was an inoperable cancer of the pylorus and he was discharged relieved of his symptoms. One of the operations was on an European for gastric ulcer of many years standing with constant hæmorrhage and pain, and she was completely relieved.

Another was on a case of perforation of a duodenal ulcer operated on within 24 hours of

perforation with general peritonitis. The perforated ulcer was located and sewn up and a posterior gastroenterostomy done at the same time. A drain was placed on the pelvis. The patient did well for two weeks, then developed fever due to a subphrenic abscess. A part of a rib was removed and this drained, then the patient rapidly made a complete recovery.

All other cases were for acute or chronic duodenal ulcer—all healed by first intention. In all the posterior operation without reversion of intestine was performed except in the cancer case in which a modified anterior operation was done, the jejunum being brought forward through a hole made in the transverse meso-colon. Considering the advanced state of emaciation the Indian with duodenal ulcer arrives at before coming to hospital the results are very gratifying.

Appendicitis—Twenty-two cases of appendicitis have been operated during the year. Of these the majority were done in the acute stage. The practice of operating as soon as diagnosis has been made was carried out in accordance with modern opinion, but the diagnosis must be justifiable as, to quote from Mr Morby in the *Lancet* (January 9th), "Since appendicitis has become not only common but fashionable, very many appendices have been unnecessarily removed in the absence of any real evidence that they were the cause of the symptoms, and without any relief to the patients suffering."

Intestinal Anastomoses—One case was done for tuberculosis of the cæcum with faecal fistula. The ilium was divided and united to the sigmoid colon by lateral anastomosis. The patient healed by first intention and left hospital relieved of his symptoms.

Faecal Fistula—This case was originally admitted for acute intestinal obstruction due to volvulus. The patient's condition being very serious with great bowel distension, the sigmoid was opened and drained in the middle line. A fistula persisting this was later excised with a small part of the abdominal wall around and when delivered cut off close to the bowel, the hole in which was then closed and the abdomen entirely closed. With the exception of a stitch abscess complete recovery was uneventful.

Strangulated Hernia—Six All recovered from it except one who died of acute mania a few hours after operation. This case was done under spinal anaesthesia. Another case has since been reported that developed mania after spinal anaesthesia. This method of anaesthesia has occasionally been used during the year. We have also watched its use in the hands of others and have come to the conclusion that it is by no means either certain or safe and may be followed by unpleasant after-effects.

Omentopexy—Two cases were done, one was very successful where the omentum was implanted into the subcutaneous tissues, the other showed no improvement, the omentum being united to the parietal peritonæum.

Abscess of Liver—Three cases only were treated by incision and drainage. In other cases aspiration with the exhibition of emetine was practised with excellent results.

- I Rupture of the Membranous Urethra
- II Extra Peritoneal Rupture of the Bladder

These cases are recorded together on account of the great similarity of symptoms and signs, making the diagnosis and therefore the choice of operative route one of great difficulty.

The first case was run over by a cart and brought suffering from great pain due to three fractured ribs, and inability to pass urine. Examination showed no definite signs of fractured pelvis nor of any injury to the central nervous system. There was a suprapubic tumour resembling a distended bladder, there was no perineal swelling or ecchymosis, a rubber catheter passed easily drew off pure blood. The bladder was opened suprapubically and found to be distended but intact. A perineal incision was then made and the urethra found ruptured in the membranous portion. A soft catheter was with difficulty got into the bladder through the perineal wound and ruptured urethra and tied in. Forty-eight hours later a silver catheter was passed by the meatus and got into the bladder and tied in for forty-eight hours. From this time onward a full sized steel bougie was passed every fifth day till date of discharge. Eight weeks later completely healed. In spite of warning he has not returned to keep his potential stricture dilated.

The second case came ten hours after injury, complaining of pain in lower abdomen and inability to pass his urine. Any attempt at lying down increased the pain. No signs of nervous lesion. The abdomen was slightly distended and tender, and a suprapubic tumour could be felt resembling a distended bladder. There was no swelling on the perinæum. A rubber catheter was easily passed and drew off pure blood. There was thought to be a fracture on the pelvis. Examination also revealed active tuberculosis of the left apex.

The patient was immediately operated upon.

A suprapubic incision revealed bleeding among the muscles with a considerable effusion of blood and urine in the retro-pubic space. The bladder on exploration was found to be extra peritoneally ruptured on its inferior and left lateral walls, the rent being about three inches, there being a corresponding fracture of the pubic bone. The rent was repaired and a suprapubic

diam inserted. The patient's condition was bad and he only survived the operation five hours.

In these cases which are notoriously difficult of diagnosis, it would seem wisest always to do a suprapubic exploration first.

Hydatid Cyst of the Socioparotidis—Patient admitted with a cystic swelling of the size of a hen's egg just above, and in front of, the angle of the left jaw of four months' duration. There were no signs of inflammation nor of stone in the parotiduct. An incision was made over the tumour which was found to be deeply situated in connection with the socioparotidis. In trying to dissect it it burst, showing a chitinous inner cyst wall which was removed as well as the outer cyst wall. Scrapings from the cyst wall showed crowds of typical hydatid hooklets. A slight salivary fistula persisted for few days and then closed spontaneously. This is perhaps the first case of (hydatid) cyst of the socioparotidis on record.

Genito-Urinary Surgery—Eleven internal and four external urethrotomies were performed. It is typical of the East that no case of stricture comes to hospital except suffering either from retention of urine or extensive and multiple fistula. Several new instruments were bought for genito-urinary work, especially a catheterising cystoscope which has allowed of catheterization of the ureters in several cases during the year and the routine cystoscopy of all cases suggestive of renal or vesical disease.

Chronic Intussusception, Excision—Patient was admitted complaining of pain in the right iliac fossa of three months' duration. The pain had been worse for the past week. There was constipation which, however, was not complete, no vomiting nor passing of blood. Examination per rectum revealed nothing. Examination of abdomen showed tenderness and rigidity of right iliac fossa. No tumour could be felt. Temp 99.8, pulse 66.

A para-rectal incision was made on the right side and a tumour could then be felt. This, on enlarging the incision, proved to be a large ileo-cæcal intussusception, the invagination extending as high as the hepatic flexure. Attempt at reduction reduced only about two inches.

The whole ascending colon was then mobilised and the tumour delivered and excised. The portion excised, including the last three or four feet of ilium, the cæcum, ascending and hepatic flexures of the colon. The ends were closed and a lateral anastomosis was performed.

The tumour was so stiff with exudation that the removal was difficult, and it was not possible to entirely peritonealise the whole of the remaining raw area. The result of this was a purulent

collection which later had to be opened by a stab incision in the loin, while part of the abdominal wound gave away leaving a small faecal fistula. The case is still in hospital three months after operation with this fistula which will be given every chance to close spontaneously before further operative measures are resorted to.

MESENTERIC CYST

R Hindu female, 35, admitted 13th May, 1914, with a history of swelling of one year's duration in the abdomen. On examination a smooth elastic tumour could be felt about the size of an adult head occupying the epigastric umbilical and left hypochondriac regions. It did not appear to have any connection with the pelvis or liver. An exploratory laparotomy showed a cystic swelling between the layers of the transverse mesocolon. The anterior layer of the mesocolon was divided, when without any difficulty the whole tumour which had no pedicle was shelled out. The tumour weighed 12 lbs. The edges of the wound in the mesocolon were united and the abdomen closed. Two days after the operation the patient developed remittent fever which rapidly became continuous. Abdomen showed no signs of disease. The patient rapidly lost ground, and died on the 7th day after operation. There were no pneumonic signs, blood negative to Widal and malaria. *Post mortem*—The mesenteric wound had healed, no sign of peritonitis, but there was thickening, redness, and some interstitial hæmorrhage into the head of the pancreas.

NEW GROWTH OF THE PERITONEUM

N, Hindu male, 30, admitted on 24th May, 1914, with a history of gradual enlargement of the abdomen for six months. Examination showed free fluid in the peritoneal cavity. No enlargement of liver. Aspiration drew off clear ascetic fluid. This rapidly re-accumulated and a second tapping drew off blood-stained fluid. The patient being very anxious, and as it was thought likely to be a tuberculosis effusion, the abdomen was opened. The whole of the upper two-thirds of the small intestine with its mesentery was completely covered with vesicles, some containing gas, some fluid, and some blood, varying in size from a pin's head to the ball of a thumb. Some were sessile, others pedunculated. It was obvious that no operative measure was feasible. The abdomen was closed after removal of a few of these growths for examination. The patient died next day. *Post mortem*—The bowel was removed, and most of it was sent to the Pathologist, Medical College, Madras, who reported the case to be a cysto-adenoma. Another portion was sent to Dr Spillsbury, Pathologist, St Mary's, London, who very kindly reported that it was

a condition not before seen by him, and as far as known is not to be found described in literature

Gynaecological Surgery—Six ovariectomies two hysterectomies, and 15 removal of diseased uterine appendages were done with no deaths. The cases of salpingitis invariably come in very late with the pelvis a mass of adhesions, and although many of these burst during removal, the abdomen was in all cases closed without a drain without untoward results. Such cases were always nursed in Fowler's position and given continuous rectal saline.

Hysteropexy—Ten were performed for retroversion and prolapse of the uterus. In no case was any after trouble reported, and one case (an European) has reported a subsequent easy labour. One case, the only serious case of acquired sepsis during the year, died. Pelvis abscess (six cases) drainage per abdomen has been so successful that drainage by vagina has been abandoned.

Cæsarean Sections—Two were performed. In one there had been a previous cæsarean section in Madras, in the other previous embryotomy. As pointed out by Dr Gow, a four to five inches incision entirely below the umbilicus suffices for this operation and there is no need to make any attempt to compress the uterine arteries. In one case the placenta was anterior and was easily detached and removed before the child, as taught by him.

This operation, so simple and safe, will no doubt more and more replace the less surgical procedures in difficult labour carried out by the vaginal route.

Extra Uterine Gestations—Two cases were done which made uneventful recoveries. In both rupture and intra-peritoneal bleeding had taken place.

Malaria—In four cases in which either the symptoms, or blood examination, or both, showed a very severe infection endangering life, quinine was administered intravenously, gr v to vii bihydrochloride of quinine in a pint of saline being given. One of these cases (nurse) had enteric fever with a very severe secondary malaria infection. Quinine by mouth and intramuscular injections had no effect on the number of parasites. In three cases including this latter, although collapse was severe after the injection, all parasites at once disappeared from the peripheral blood and the patients recovered.

The fourth case was a thick-necked European female with a temperature of 106.2 and cerebral symptoms. She took the injections well, but two hours later collapsed and died 4½ hours after the injection. These cases have been already reported in the *Indian Medical Gazette* in view of the importance of the subject.

With a view to economy amorphous cinchona alkaloids were tried to replace quinine but were found unsatisfactory in both gr v and gr x doses, while in mixture it was found to be very nauseous, and it did not lend itself to prescribing in pill form. So it has been given up.

Salvarsan has been given in a number of cases intravenously during the year, all cases doing well. An apparatus has been obtained for making freshly-distilled water for this and other operations.

The practice has been followed of making patients supply their own salvarsan except when too poor, or it is considered that delay may lead to serious lesion, such as loss of vision, etc.

A Mirror of Hospital Practice.

SURGICAL NOTES FROM MADRAS HOSPITAL *

By W J NIBLOCK, FRCSI,

MAJOR, I.M.S.,

First Surgeon, General Hospital, Madras

THE First Surgeon's wards were in my charge throughout the year.

The following table shows the number of patients treated —

| CLASS | Remained | Admitted | TOTAL | Cured | Relieved | Discharged otherwise | Died | Remaining |
|---------------|----------|----------|-------|-------|----------|----------------------|------|-----------|
| Europeans | 6 | 253 | 259 | 157 | 45 | 39 | 8 | 10 |
| Non Europeans | 55 | 1,007 | 1,062 | 607 | 215 | 233 | 48 | 54 |
| TOTAL | 61 | 1,260 | 1,321 | 664 | 260 | 277 | 56 | 64 |

Mortality —4.24 per cent. This includes 26 cases admitted moribund.

Operation Work—The following table shows the operative work done during the year —

| CLASS | Remained | Operated | TOTAL | Cured | Relieved | Discharged otherwise | Died | Remaining |
|---------------|----------|----------|-------|-------|----------|----------------------|------|-----------|
| Europeans | 9 | 137 | 139 | 115 | 11 | 4 | 4 | 5 |
| Non Europeans | 35 | 534 | 569 | 404 | 86 | 23 | 23 | 33 |
| TOTAL | 37 | 671 | 708 | 519 | 97 | 27 | 27 | 38 |

Mortality —3.83 per cent.

* From Report of General Hospital, Madras

The following cases appear to me to be worthy of special note —

APPENDICITIS

| Class | Age | Sex | Operation | REMARKS |
|------------------|-----|-----|-----------------------|--|
| A —I | 24 | M | Excision of appendix | Chronic appendicular dyspepsia |
| E | 31 | F | Do | Recurrent Suppurating |
| A —I | 43 | F | Do | Suppurating Fallopian tube implicated |
| H | 18 | M | Evacuation of abscess | Acute abscess |
| H | 22 | M | Excision | Acute perforation Operation within 12 hours |
| A —I | 16 | M | Do | Chronic Recurrent |
| H | 30 | M | Do | Do |
| A —I | 23 | M | Do | Chronic appendicular dyspepsia |
| H | 29 | M | Do | Acute Gangrene commencing |
| H | 27 | M | Do | Chronic Recurrent |
| H | 30 | M | Evacuation of abscess | Large abscess |
| H | 40 | F | Do | Complicated by salpingitis Too ill for removal |
| H | 38 | M | Do | Large abscess |
| H | 22 | M | Excision | Chronic appendicular dyspepsia |
| H | 25 | M | Evacuation of abscess | Abscess Acute |
| E | 33 | M | Excision | Suppurating |
| E | 15 | M | Evacuation of abscess | Abscess large |
| A —I | 26 | M | Excision | Recurrent Sub acute |
| H | 20 | M | Do | Acute |
| H | 12 | M | Evacuation of abscess | Acute abscess |
| Syrian Christian | 29 | F | Excision | Chronic Recurrent |
| H | 43 | M | Do | Gangrenous |
| H | 29 | M | Do | Recurrent |
| H | 28 | M | Do | Acute Four days' acute intestinal obstruction |
| H | 32 | M | Evacuation of abscess | Abscess large |
| H | 12 | M | Excision | Acute |

It is interesting to note that eighteen of the patients operated on were Indians. It is also worth noting that, although excision was possible in all the Europeans and Anglo-Indians (amongst whom is included the Syrian-Christian), yet in eight of the Indians excision was impossible owing to the presence of a large abscess, the condition of the patient in all of these absolutely contra-indicating removal. Further, in six of the Indians, where excision was performed, the condition was either very acute or the appendix actually gangrenous.

These facts, and the same phenomenon is noticed year after year, compel me to conclude that appendicitis is much more common amongst Indians than is generally supposed to be the case, but that the majority of the cases are either not diagnosed at all, or, if diagnosed, terminate fatally before arrangements can be made to have them admitted to hospital. Further, I have seen outside hospital several patients suffering from symptoms of acute appendicitis, who absolutely refused to allow any operation to be performed,

with the result that a fatal termination occurred. When operation is performed the percentage of recoveries compares very favourably with similar operations in Europe, a fatal result being the exception.

In my experience all classes, whether meat eaters, non-meat eaters, or vegetarians are liable to the disease.

Multiple Strictures of Jejunum — A Hindu, aged 22 years, was admitted to the medical wards suffering from symptoms typical of dilatation of the stomach apparently due to stenosis of the pylorus, the only peculiarity being that the pain complained of, and tenderness, were most marked half an inch to the left of the umbilicus.

As medical treatment did not relieve his condition he was transferred to the surgical wards for gastro-jejunostomy.

On exposing the jejunum two strictures were discovered—one about three inches below the duodeno-jejunal flexure, the other about four inches lower down. These strictures involved the whole circumference of the gut and barely admitted a lead-pencil. Resection of about twelve inches of jejunum was performed, the patient making a good recovery.

The cause of the strictures could not be decided with certainty but they were probably the result of tubercular ulceration. No adhesions were present.

Thrombosis of Mesenteric Artery and Vein — A stout female, aged 56, was admitted suffering from symptoms of acute intestinal obstruction with a history of two days' duration. She was at once prepared for operation, and laparotomy performed. On opening the abdomen 43 inches of small intestine (lower end) were seen to be gangrenous, the result of thrombosis of branches of the mesenteric artery and vein. No appreciable dilatation of any part of the intestines was to be seen.

As her condition was fair resection was performed but she succumbed next day. It subsequently transpired that she had suffered for many years from valvular disease of the heart. She also had a large reducible inguinal hernia which occasionally gave her trouble, but was not down at the time of operation.

Sarcoma of Small Intestine — A tumour about the size of a cocoanut in the small intestine, eight inches from the ileo-cæcal valve. Small intestine above greatly dilated. Resection of 30 inches of small intestine followed by lateral anastomosis of ileum and sigmoid. The pathologist reported that the tumour was a small round-celled sarcoma. In connection with this case it may be of interest to remark that, during the course of sixteen years' active surgical work in the wards of the General Hospital I have never yet

seen, in the case of an Indian, carcinoma of the intestine situated anywhere between the stomach and the rectum. I have seen cases in Europeans and Anglo-Indians. I have also seen carcinoma of the mouth, pharynx, œsophagus, stomach, and rectum (usually commencing as anal carcinoma) in Indians, but never an undoubted *primary* carcinoma between the two points mentioned. Carcinoma of the mouth is, of course, a fact which can easily be accounted for, but why the intestine should be so immune I am quite unable to understand. It cannot be on account of non-meat eating, as a large percentage of our patients do eat meat of all sorts.

Accidental Severing of Superficial Femoral Artery and Vein—A Hindu, aged 45, was cutting firewood in the vicinity of the hospital when a piece of steel from the edge of the hatchet became detached and penetrated his thigh near the apex of Scarpa's triangle. The wound was quite small, about three-quarters of an inch in length. He was carried to hospital at once, an improviso tourniquet having been put on, and seen by me immediately. Under chloroform the wound was examined. There was profuse bleeding into the tissues of the thigh. The wound was enlarged and the piece of steel, which had a sharp jagged edge, removed. The femoral artery was seen to be completely, and the vein partially, severed. They were ligatured above and below the seat of injury, and the wound packed with iodoform gauze. No sutures were put in. The wound healed up without any trouble and the patient left hospital completely cured.

Venous Angioma of the Leg—A Hindu girl, aged 16, was admitted suffering from a large deeply-situated venous angioma of the leg. The circumference of the leg was about three times that of the sound side, the tibia and fibula were widely separated, and the swelling extended from just above the ankle to the level of the tubercle of the tibia. A tourniquet was applied and a ten-inch longitudinal incision was made into the swelling. The walls intervening between the large cavernous spaces were broken down as completely as possible and the resulting cavity packed firmly with iodoform gauze and a firm bandage applied. Three days later an attempt to remove the gauze resulted in a gush of blood, and therefore, as the gauze was quite aseptic, it was not removed. At the end of a week the gauze was taken out when no bleeding resulted. The wound healed up without any trouble, with obliteration of the cavity.

Elephantiasis Scroti—Only twelve cases were operated on during the year. The number of elephantiasis scroti cases admitted steadily diminishes year by year, and those met with are much smaller than used formerly to be the rule.

Hydrocele and Hematocele—Seventy-nine hydroceles and seven hæmatoceles were successfully operated on, incision and eversion of the sac being the method of choice.

Hepatic Abscess—Seven cases were operated on by the open method. All made good recoveries.

As the "open" operation appears to be falling into disrepute I should like to say here that I have never yet had a fatal result in any case of abscess of the liver operated on by the open method where the contents of the cavity amounted to only twelve ounces or less, although I have operated on quite a large number of cases.

Hernia—Two cases of femoral and 53 of inguinal hernia (including eight strangulated, one of whom died) were operated on for radical cure. I regret to have to report that one case of reducible inguinal hernia died from delayed chloroform poisoning. He was a very corpulent Hindu, aged 34.

Infective Granuloma of the Pudenda—Several of these were treated during the year by thorough scraping followed by frequent application of X-rays. Most of them left hospital apparently cured.

Excision of Elbow—Excision of elbow was carried out in three cases of old fractures into and around the joint. In two of them arthroplasty was performed. All these operations resulted in useful joints.

There is no doubt in my mind that arthroplasty enables one to obtain a useful elbow joint in very bad cases of old callus formation in a much shorter time and with less pain to the patient than is to be got where excision alone is carried out. It is a particularly useful operation when applied to the elbow, but is not in my opinion suitable for affections of the knee-joint, where excision followed by a stiff joint is to be preferred.

Operations on Bones—Several operations for fractures, necrosis, etc., were performed but were of no special interest with the exception of one case of ununited fracture of the neck of the femur. This occurred in a young Hindu and had existed for several months. A large screw nail was driven through the great trochanter, along the neck, ending up in the head of the bone. The result was most satisfactory as the patient was able to walk out of hospital about two months later without any trouble.

Lymphangioplasty—This operation was successfully performed in a case of elephantiasis of the arm said to have been the result of an insect-bite received at least one year before. It is not suitable for cases of filarial elephantiasis.

FLORENCE'S REACTION—A NEGLECTED TEST FOR SEMINAL STAINS

By S N GORE, L.M. & S.,

Bacteriological Department, Bombay

My reasons for drawing the attention of toxicologists in India to this test are the following—

1 No book on Indian Medical Jurisprudence makes even a mention of this reaction, while the latest edition of Lyons' Jurisprudence, on the other hand devotes half a page to condemning the obsolete guaracum test for blood

2 Out of the methods for the detection of spermatozoa under tropical conditions, Hankin's method is perhaps the best. But this method is considered to be too elaborate for routine work. It takes a long time, and requires a good deal of practice before one feels confident of the negative results

3 In seminal stains cases, innocent stains greatly preponderate over seminal ones, and the reason thereof is not far to seek. One has only to remember the people amongst whom this crime is generally committed. Their clothes are dirty and already bear a variety of innocent stains. It is on such clothes that the toxicologist is called upon to detect spermatozoa. Macroscopical signs of seminal stains—even as presumptive ones—are very few or rather none, owing to this fact, nearly all the visible and slightly palpable—*i.e.*, stiff—stains go to swell the number of stains that have to be subjected to the elaborate *technique* for the detection of spermatozoa

4 Conscientious search for the spotting of typical spermatozoa under the microscope entails a good deal of eye strain, and any method that contributes to the reduction thereof is worth a trial or even adoption as a routine

5 Florence's test is very simple, perhaps as simple as Hankin's cocaine test, its negative value is conclusive, its positive value is very presumptive of the stain being seminal. In fact, it is as good a presumptive test as MacConkey's bile-salt lactose test for the bacillus coli

In support of this I need mention from my notes only one instance of its eliminative value. In a rape case there were two articles suspected to bear seminal stains. On macroscopical examination seven stains on one article and ten on the other were selected and stained by Hankin's method. After a prolonged search under the microscope, only one spermatozoon—with head only marginally stained, and half of the tail attached—could be detected in one stain out of the lot of seven stains. To confirm this, fresh bits from the original of the seventeen stains were examined for Florence's reaction and again only one out of the lot of seven stains gave a positive result. The stained slides were

re-examined and the former results verified. From this it is evident that preliminary use of Florence's reaction would be a great factor in eliminating innocent stains, which as pointed out above, form the majority

The method of applying Florence's reaction—

(a) All the suspicious stains are serially numbered and small bits—about one-eighth inch—are snipped off therefrom with a pair of scissors. The bits are serially arranged on slides and the respective numbers written opposite each bit

(b) A drop of glycerine solution (1 in 10) is placed on each bit to soften the material

(c) After about three to five minutes the bits are teased if the cloth happen to be of thick and coarse texture

(d) A drop or two of Florence's reagent is placed on each of the bits and over this a cover-slip. Florence's reagent consists of iodine, 2.54 gms., potassium iodide, 1.65 gms., and distilled water, 30 c.c.

(e) These preparations are then examined under the microscope with a one-sixth inch lens

(f) If a stain be seminal, dark brown crystals in the form of rhombic platelets resembling hæmin crystals or needles often grouped in clusters are seen. These crystals or needles are generally to be found either in the coloured liquid beside the bit of the cloth or in its meshes in which case the crystals or needles appear to be growing out of the threads. Absence of such crystals or needles is a conclusive test that the stain is not seminal, while the detection of the crystals or needles is presumptive of the stain being seminal. To confirm the positive presumption the remainders of the stains on the articles are subjected to Hankin's method for the detection of typical spermatozoa. This confirmation is necessary, as it is said that these crystals can also be obtained from crushed insects, watery extracts of various internal organs, and certain other substances. It is worth noting that in searching for spermatozoa stained by Hankin's method the characters thereof are best observed with an oil-immersion lens, the head, neck and tail being all individually definable

In concluding the advocacy and description of this simple test, I have to thank Dr. E. H. Hankin, M.A., Sc.D., Chemical Examiner and Bacteriologist, United Provinces, under whom I had the honour to serve as his assistant for over eleven years, for the opportunity given me to verify the utility of this neglected reaction

A CASE OF RAYNAUD'S SYMMETRICAL GANGRENE.

By K. T. VORA,

Dasada, Kathiawar

A few days ago I was reading the *Lancet* of 6th July, 1889, when I came across an article on

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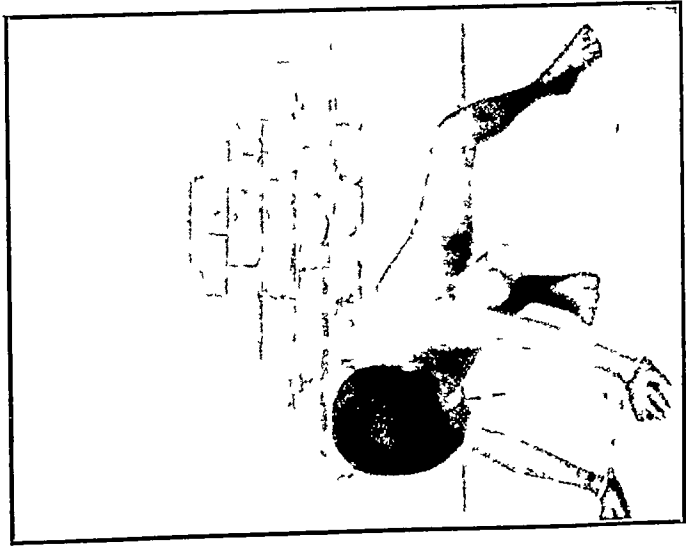
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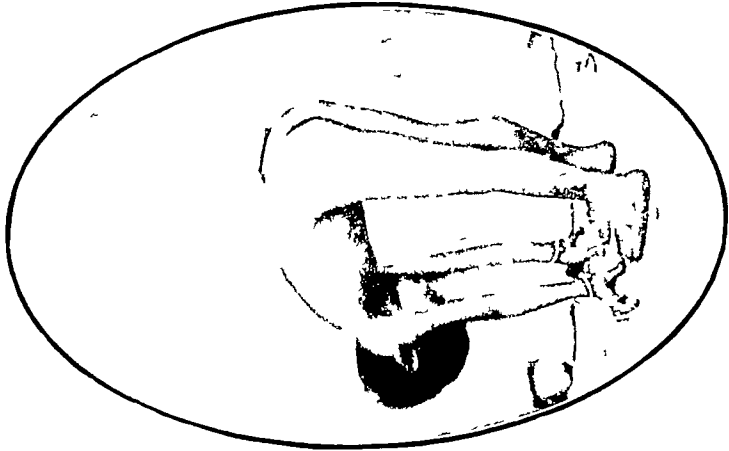
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PROGRESSIVE MUSCULAR DYSTROPHY—(ERB)

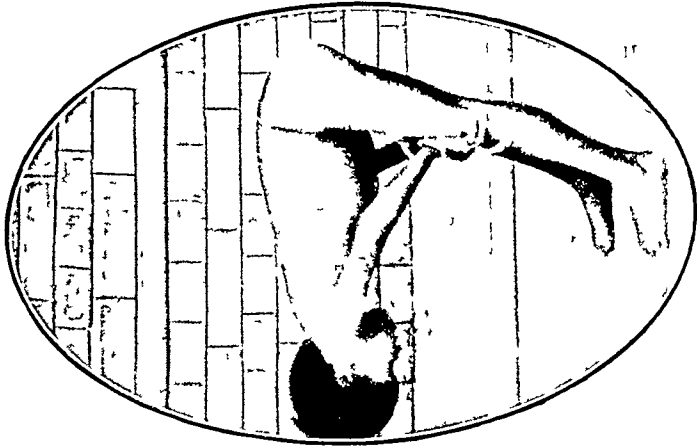
By ASSISTANT SURGEON N L MOOKERJEE,
Pilgrimage Hospital, Gaya



First Stage



Second Stage



Third Stage

Raynaud's Symmetrical Gangrene by Dr John Ed Morgan, of the Victoria University, and it struck me at once that I had also treated a similar case in 1908, but that of the nature of the case I was ignorant up to this time. The disease is so rare that I have thought it my excuse for publishing my notes, and I think that they will be useful to my fellow workers —

A B, a policeman, resident of Northern India, Mahomedan by religion, aged about 40, came under my treatment while I was in charge of Babia Dispensary (Kathiawar) in the year 1908. He was a man of middle stature, thinly built, and cachectic in appearance. No history of syphilis.

He said that his disease began about three weeks ago with paroxysms of tingling and burning pains in the fingers and toes, and that during the paroxysms the fingers were becoming slightly swollen and livid. This condition gradually became worse, till the pain became almost constant. The fingers and toes on admission were quite numb and he could not feel a touch or a prick. He could not lift anything with the fingers nor could he eat also. The colour of the fingers and toes was bluish which in a short time became black, the blackness commencing at the tips. The nails also became black and the disease extended as far as the metacarpo and metatarsal phalangeal joints and the skin became shrivelled up. All the fingers and toes were affected rapidly, and the man was in a great fight. He became very nervous and went away home on sick leave.

The treatment adopted by me was enveloping the parts in cotton-wool and giving him tonics and stimulants. My diagnosis of the case was dry gangrene of the fingers and toes, although my suspicion was aroused on account of the symmetrical situation of the disease.

This disease was first described by Raynaud in 1862. It is characterized by local vascular changes in one or more of the fingers, for the most part symmetrically on the two sides of the body, resulting very often in gangrene.

Three types are described a syncopal, an asphyxial, and a gangrenous.

The first thing noticed is a pallor and numbness of one or more of the fingers or toes, usually the corresponding finger or toe on both sides, coming on in attacks lasting an hour or more. This pale or syncopal stage is generally followed by a reactionary stage of congestion and heat, with swelling and lividity, in which the tip of one or more of the fingers or toes or the ears may be of a dark purple colour. There is usually a good deal of pain. Sometimes the pale stage is very definite, sometimes it is wanting, or it may be so transient as to be unobserved. Occasionally the entire hands are involved. After a certain number of these attacks gangrene occurs at the tip of one or more fingers or toes or of the ears. The dead part becomes separated from the living in the usual way and the ulcer that is left heals normally.

TREATMENT

This consists in keeping the parts warm by enveloping them in cotton-wool and protecting

from exposure to cold. The most efficacious remedy is the use of battery constant or interrupted current. Thyroid gland and nitroglycerine are beneficial especially in the syncopal type. The pain is relieved by morphia which acts in a double way in asphyxial cases by giving tone to the vessels.

PROGRESSIVE MUSCULAR DYSTROPHY (Erb)

By N L MOOKERJEE,

ASSISTANT SURGEON,

Pilgrim Hospital, Gaya

A HINDU Rajput boy, aged about 7 years, belonging to the District of Palamau, was brought to the Pilgrim Hospital, Gaya, on the 9th April, 1915, for the treatment of a series of complaints, prominent among which was his difficulty in getting up from the sitting posture. The patient is said to have been suffering from this difficulty for about three years and is gradually getting worse.

The disease first manifested itself in two of the patient's elder brothers, one of whom died about three years ago, from gradual exhaustion, having become completely bed-ridden, and the other, aged about 12 years, is now in an absolutely helpless condition, entirely depending for locomotion on an improvised cart made from a box. The father and mother of the child are free from any such complaint, but it is said that a maternal uncle of the child died of a similar complaint, which was not clearly understood.

The child is ill-nourished. The muscles of the calves are increased in volume and those of the shoulder girdle distinctly relaxed and rather atrophied, and there is slight drooping of the shoulder joints. The shoulders are characteristically "loose," and when the child is lifted with hands under the arms, the shoulders reached the level of the ears. The shoulder blades are prominent particularly at the lower angles which has given them the peculiar winged appearance. The arms look disproportionately longer than usual, on account of relaxation of the muscles. The abdomen is protruding and the spine is curved with distinct lordosis. The gait is waddling. In getting up from the floor to standing posture, the pathognomonic position assumed may be described in three stages —

In the first stage, the child turns over sideways on all fours and attempts to raise the trunk using his arms as levers, in the second stage he supports his trunk on all fours by being as if doubled up; and in the third stage the hands are moved along in turns to reach the knee on which he climbs up to assume the erect

posture. A photo of each of the stages mentioned above, and which are not found in text-books has been taken for demonstration of the positions the patient has to pass through. The difficulty is progressively though slowly increasing, and it is feared that the patient will also become bed-ridden soon. The intellect of the child is unaffected and there are no sensory symptoms. The deep reflexes are slightly modified and the electrical excitability of muscles is also weak.

The patient has got a mixed type of muscular dystrophy. The disease is characterised by prominent family predisposition with juvenile attack but cannot be grouped under any of the clinical forms described in the text-books. The photos attached hereto will be, I believe, of great academic interest.

A POCKET ELECTROSCOPE

By F. D. BANA, M.B., M.R.C.P.,

Grant Medical College, Bombay

THE following is a sketch outline and description of a small pocket electroscope devised by me and demonstrated at the Local Branch of the British Medical Association. The special features which commend it are —

- 1 It is inexpensive
- 2 It is portable and can be carried in the pocket
- 3 All the parts are easily detachable and replaced
- 4 It is aseptic
- 5 The spatulate form can also be used as a tongue depressor and as a simple throat illuminator at the bed side or where illumination by day light is inadequate
- 6 It can be used as a trans-illuminator of the accessory sinuses of the nose in a perfectly dark room

b Indianrubber tubing same size as glass tube. It serves as a sheath and limits the light anteriorly from a small pea-lamp.

c screwed on one end by making a little spur on to the end of the tube in a blow-pipe flame.

d is the closed end of half a test-tube fitting the rubber sheath and serving as a protector to the lamp *c*, thus encased the electroscope can be held in the mouth by the patient closing the lips. It can be cleansed with lotion or sterilised by boiling if necessary.

e is a second coverlet which can be slipped over the first coverlet *d*. It consists of gutta-percha or any suitable material impermeable to light enveloping all except one-third of an inch at the closed end. In this form the frontal sinuses can be illuminated.

f are wires connecting lamp to an Ever Ready Battery.

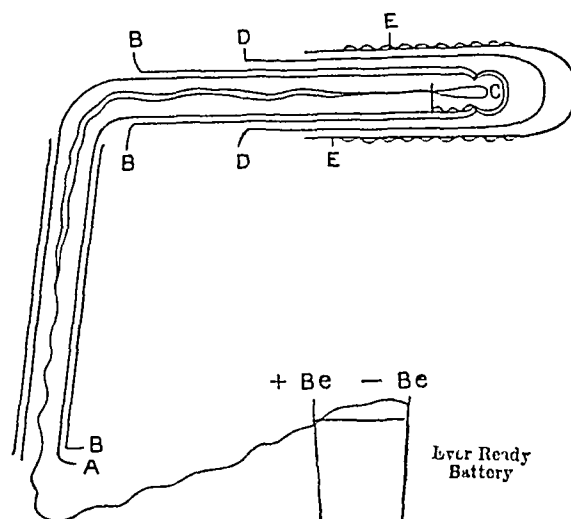


FIG B

The spatulate form (B) is identical in all respects to the first except that a bigger glass tubing, about eight inches, is required which is bent at the centre to a suitable angle to form a handle for a tongue depressor.

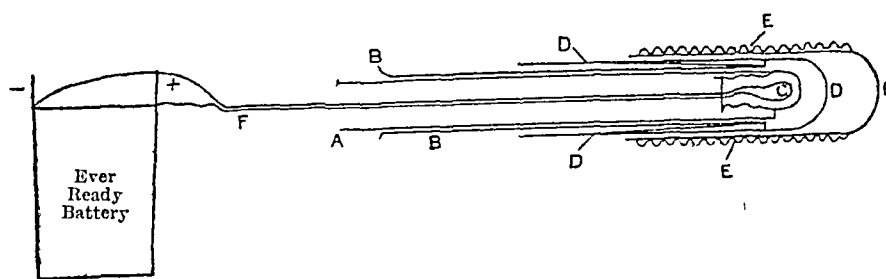


FIG A

a is a stout glass tubing internal diameter $\frac{1}{2}$ inch and 6 inches long made from glass tubing by filing off successive lengths of 6 inches and rounding the edges in a blow-pipe flame.

Although no originality is claimed, I think it worth recording from the point of view of its portability and cheapness and the ease with which parts can be replaced.

Indian Medical Gazette

AUGUST

SUBSTITUTES FOR GERMAN HEALTH RESORTS

At the Royal Society of Medicine on 4th March, 1915, Dr Leonard Williams read an admirable paper on the Teutonic Health Resorts and their substitutes

It is of course assumed that British invalids will, for many years to come, avoid German watering places. It is therefore, very necessary that physicians should make up their minds as to the best substitutes for the once popular and much-boomed German and Austrian spas

These enemy resorts have, in the nature of things no advantage over those either in the British Isles or in friendly countries, neither in the waters nor the climate nor in the skill of the physician. This being so, how then do we account for the vogue which these places have enjoyed among the well-to-do classes for the past forty years?

Dr Leonard gives two reasons for the fashion. The first is an historical one. The German and Austrian spas were the first in the field with modern equipment and methods. The second reason is to be found in the docile, obedient, and submissive character of the German. The militarism under which he has been born and bred taught him docility. He no more dares to disobey the doctor than he would dare to flout the drill sergeant. In Germany if you wish to be taken seriously you must raise your voice and roll your eyes. It is the cultured method and the physician adopts it. He writes down for the patient the minutest details, even to the number of respirations allowed per minute. He signs the whole as if it was a military order, and he is obeyed!

As is the doctor so is the health resort. All is minute, particular, ordered, and studied. All the patients do exactly the same thing, at the same time, and in the same way.

This, curiously enough, does not repel the British invalid. When ill he is feminine enough to like being drilled. Everyone else is doing it. It is only when left to himself that he is bored.

The seriousness of the cure-ritual is thus insisted upon and is a powerful asset. The whole social and commercial sides of the place are devoted to this end.

At a French spa the centre of interest is the Casino, at a British it is the golf links. In a German spa it is the "cure." If you are not a "cure guest" you are nobody.

There is, moreover, the advantages of change. The change for a British patient at a Continental spa is considerable, he is further away from business and its worries, and the sense of unfamiliarity is conducive to discipline.

If then, as may certainly be expected, German and Austrian watering places must be avoided by British invalids, what has the physician to offer in their places?

Take Karlsbad and its neighbour Marienbad. They both cater for the same type of patient, the overfed, obese, and plethoric. For this class of patient the French spa, Vichy, is in every respect equally useful. The waters consist mainly of bicarbonate of soda. They contain no purgative salt. Special attention is paid to bathing, massage, and Zander exercises. For the treatment of gastro-intestinal disorders and gastro-hepatic complaints the Vichy treatment is less debilitating and more satisfactory than that given at Karlsbad or Marienbad.

Another French substitute for Karlsbad is Brides-les-Bains in the Savoy Alps, close to the Italian Frontier, it has been called the "French Karlsbad."

These French resorts are excellent substitutes for the two Austrian resorts but also for the more essentially German, Hamburg, and Kissingen, the reputation of both of which is more social than medical.

Gout, rheumatism, and arthritic troubles are treated at German resorts such as Wiesbaden, Baden-Baden, or Kreuznach. But a more famous place for the same troubles is Aix-les-Bains. The baths are complete and excellent and the drinking water famous for ridding the system of the effete matters which produce the arthritis and myositis for the relief of which patients seek this gay, social and charming Alpine station. Here too as at Vichy English-speaking doctors are found.

Aix-les-Bains has, however, three British rivals in Harrogate, Buxton, and Islandwood. Harro-

gate has shown more enterprise than most British spas. The mineral resources have been generously supplemented by all the adjuncts to spa treatment, electricity, massage, and the like which modern methods demand. The bathing establishment is very completely equipped. Gouty rheumatic states and cutaneous and circulatory disorders dependent on them are specially catered for at Harrogate.

Buxton, in the Derbyshire hills, is a serious competitor with Harrogate. It has an elevation of 1,000 ft., and its climate is bracing while sheltered from keen north and east winds. The waters closely resemble those of Contrexéville and Plombières in the Vosges mountains and the installation for the Plombières treatment is very complete. Buxton is the British spa *par excellence* for a patient suffering from defective elimination as opposed to defective metabolism.

The Welsh spa of Llandrindod has all the kinds of baths that modern treatment demands, the air is agreeable to those in health and also peculiarly suitable to the debilitated and neurasthenic type of invalid.

Of the resorts, which make a special feature of the treatment of circulatory disorders Nauheim is best known. It is a monument of German push in matters medical, as Dr L. Williams writes—"It is an example of colossally successful bluff on a foundation of a little common salt and a large quantity of gas, verbal as well as physical", on which "has been erected a superstructure imposing in its parts and profitable to the builder." Tepid and cold effervescing saline baths are undoubtedly useful and they can be found elsewhere, for example at Sidmouth, in Devonshire, and at the still better known spas at Royat and Bourbon Lancy in France.

For respiratory disorders, there are many spas in France, and Mont Dore is a complete substitute for the German Ems.

Of the mineral water stations which have specialised in the diseases peculiar to women, Franzensbad in Austria has enjoyed a great reputation. Stress was laid by the local authorities on the virtues of the mud-baths, but the real secret of its success was in the strong purgative element in the waters. All that was found at Franzensbad can be obtained at Plombières and at Châtel Guyon, and in the British Isles at Droitwich in Worcestershire or at Woodhall

Spa in Lincolnshire. Droitwich has excellent hotels, which serve to make it popular with visitors from the United States.

The German spa at Aachen (Aix la Chapelle) is famous for its thorough treatment of syphilis, in France there are two excellent substitutes, at Luchon, not far from Toulouse, a charming summer place at an altitude of 2,000 ft., and at Uriage close to Grenoble, in the mountains of the Dauphine.

Of winter resorts there are few. Germany has none except Wiesbaden, Austria none at all. Indeed, there are only two of first rank, namely, Bath in Somerset and Vernet les Bains on the Franco-Spanish Frontier, and of the two Bath is superior in every way.

It will be seen from the above rapid review that the physician need not be at a loss to recommend to his patients full and sufficient substitutes for the much-advertised resorts in the enemies' countries.

Current Topics.

SUB-ASSISTANT SURGEONS IN THE CENTRAL PROVINCES

THE new rules for admission of candidates to the Robertson Medical School at Nagpur and the conditions of service are published in the *C P Gazette* of 26th June.

The pay offered is from Rs. 45 to Rs. 110 with certain allowances, house rent, epidemic allowances, and the following "charge allowances" which are certainly a great improvement on some of those in force in other provinces.

Charge allowance—

(1) For holding charge of a dispensary which is not tenable by a Civil Assistant Surgeon at Rs. 10 per mensem.

(2) For holding temporary charge of a dispensary tenable by a Civil Assistant Surgeon, at Rs. 20 per mensem.

(3) For holding charge of the Jail Hospital—to a 1st Sub-Assistant Surgeon, at Rs. 25 per mensem, to a 2nd Sub-Assistant Surgeon, at Rs. 10 per mensem.

(4) For charge of the Railway Police Depot at Nagpur, Rs. 5 per mensem.

(5) For combined charge of District Jail and Police Hospitals, Rs. 20 per mensem.

(6) For charge of the Civil Station Dispensary, Nagpur, Rs. 15 per mensem.

(7) For subordinate charge of the Mayo Hospital Nagpur, Victoria Hospital, Jubbulpore, and

Civil Hospital, Raipur, at Rs 15 per mensem to the 1st Sub-Assistant Surgeon, and at Rs 10 per mensem to the 2nd Sub-Assistant Surgeon, if any

Special allowances including ordinary charge allowance for unhealthiness and remoteness of certain places, varying from Rs 15 to Rs 25

Suitable allowances to Sub-Assistant Surgeons whose services are lent to the Public Works Department or to those who in charge of dispensaries are required to visit temporary hospitals on road or public works

TREATMENT OF KALA-AZAR

In the *Journal of Tropical Medicine* (May 15th 1915) there is a paper by two Italian observers, Dr Di Cristana and G Caronia on the treatment of internal Leishmaniasis or infantile kala-azar. It is well known that many parts of Sicily and Southern Italy suffer from a form of kala-azar, and as may be seen by the paper in our May number Sir Leonard Rogers states that an uniformly successful treatment is yet to seek

For some months past Rogers has been trying the use of antimony in the Indian form of kala-azar (*v* July No *IMG*). It appears that in a closely allied form of cutaneous Leishmaniasis in Brazil G Vianna has had good results from the use of intravenous injections of antimony tartrate. The two abovenamed Italian observers have recently tried intravenous injections on alternate days of a 1 per cent watery solution of antimony tartrate commencing with a minimal dose of 2 cg and increasing to the maximum of 10 cg. The veins selected are that at bend of elbow, temporal or the external jugular. The drug produces necrosis of the tissue if used subcutaneously or intramuscularly. Ten cases have been so treated, two in advanced stages died, five are said to be "cured," and two are "progressing favourably," but one died of acute nephritis, possibly due to the antimony.

The "cured" cases have all been children and the treatment lasted from 15 to 40 days. Prof Castellani late of Ceylon, now of Naples University also publishes a paper where a case of kala-azar was treated by "Yaw's mixture," which contains tartar emetic.

It now remains to be seen if this antimony treatment will become established. We have seen so many hopes disappointed in the treatment of this disease that we are not prepared to proclaim a panacea on the strength of a half dozen cases. The publication of Sir Leonard Rogers' cases of his treatment of the very fatal Indian kala-azar will be awaited with interest. So far his results are promising.

MEDICO LEGAL NOTES IN BENGAL

As is usual the Report of the Chemical Examiner, Bengal, contains a selection of medico-legal cases by Asst-Surgn Rai Chuni Lal Bose Bahadur, I S O, which are of considerable interest and deserve a wider publication than is found in the official report. We quote them as follows —

(1) *Arsenic Poisoning—son murdered for grudge against the father*—The following case illustrates one phase of crime not infrequently met with in this country, in which innocent children are sacrificed to satisfy the grudge entertained against their parents.

The Sub-Assistant Surgeon of Siwan forwarded the viscera of a boy, aged about 12 years, with the following history—The father of the deceased had long enmity with the accused (who was his cousin) over some landed property and who threatened to exterminate his family. On the day of occurrence, the accused called the boy to his house and gave him some sugar to eat, he also gave another quantity of sugar to a nephew of his who was also standing there apparently to avert suspicion. The deceased, not liking the taste of the sugar, wanted to throw it out, but the accused made him swallow it by giving him a draught of water. The nephew showed no signs of poisoning, but the boy began to vomit and purge a short time after taking the sugar and died within a few hours. The *post mortem* showed congestion and extravasation of blood in the mucous membrane of the stomach, most marked at its oesophageal end and at the greater curvature. The internal organs were also congested. The viscera of the boy were forwarded for chemical examination and a marked quantity of arsenic was detected in them.

(2) *Arsenic poisoning reported as cholera*—A fatal case of 'arsenic poisoning' in which the body was disposed of by the relatives as a case of cholera was referred by the Subdivisional Officer of Kalna. According to the history of the case, the man suffered from purging and vomiting for four days before his death. He was not treated by any medical man, and he died on the 28th August, 1914. The relatives gave out that it was a case of cholera and had the body buried. A few days after, the Subdivisional Officer received an anonymous letter stating that the case was one of murder by poison, and he ordered the body to be disinterred and a *post mortem* made. The autopsy was held on the 10th September when the body was in an advanced state of decomposition, and the medical officer was unable to give any opinion as to the cause of death. The viscera were sent to this department for chemical analysis, and arsenic in marked quantity was detected in them.

(3) *Love philtre*—The Assistant-Surgeon of Rajbari forwarded the viscera of a Mahomedan male with the history that the deceased made several unsuccessful attempts to bring home his wife from his father-in-law's place. Another Mahomedan male, who was believed to be in criminal intrigue with his wife, gave the deceased some "charmed" sugar to eat, stating that this would make his wife more loving and cause her to return to him. The man had violent vomiting and purging after taking the sugar and he died within five or six hours. The stomach was found congested and contained a quantity of glairy mucus mixed with white gritty particles. The small intestine was congested and the large bowels were empty. The internal organs were also congested. The viscera were submitted to chemical analysis, and a marked quantity of arsenic was detected in them. Some pasty substance, alleged to be the vomited matter of the deceased, as well as some clothes soiled with his vomited matter, were also forwarded for examination and arsenic was detected

in them. A packet of earth mixed with white particles was also forwarded for analysis, and white arsenic was detected in the contents.

(4) *Abortion Case*—The Civil Surgeon of Cuttack forwarded the viscera of a Hindu female, aged 20 years, who had taken some poison to cause abortion. The stomach and the small intestines were found congested and there was ecchymosis near the cardiac end of the stomach. The gastro-intestinal tract was practically empty. The uterus was enlarged and uniformly congested. It contained a fœtus of about four months with its membranes and liquor amni intact. A plug of cotton was removed from the vagina and also forwarded for examination. Arsenic was detected in the viscera of the deceased and white arsenic in the plug of cotton wool which was locally applied. This was a case in which arsenic was taken internally and applied externally to cause abortion.

(1) *Dhatwa Poisoning—to facilitate theft*—(1) A fatal case of road-robbery was referred by the Assistant-Surgeon, Deogarh. The victim was a pilgrim, who, with another, went to visit the local temple. They met a stranger there who offered his services as a guide and was taken into confidence. The man gave them some sweetmeats, after taking which they became insensible and the poisoner decamped with all their belongings. One of the victims died, but the other man who was removed to the local hospital recovered under treatment. The viscera of the deceased as well as some earth of the place where he vomited were forwarded for chemical analysis and atropine was detected in both.

(2) *Ibid*—Another typical case of road-robbery by the administration of *dhatwa* was referred by the Civil Surgeon of Monghyr. A man and a woman with a little boy of six years left their home in the district of Monghyr for Calcutta in search of employment. A stranger, by appearance a Punjabi, made their acquaintance at Monghyr where they were stopping at an inn. When the man had gone to the bazar to purchase condiments for cooking their food, the accused offered to the woman some condiments which he had with him and the woman unsuspectingly added the same to the curry she was preparing. The man and the woman both took the curry, but the little boy did not. The accused was also given the same curry, but he did not touch it as he said he had recently purchased some food from the bazar which he did not like to be wasted. The man and the woman became intoxicated after taking the food and were robbed of Rs. 25 by the accused who then disappeared. The boy who did not touch the curry showed no symptoms of poisoning. The victims were taken to the local hospital where their stomachs were washed, and the washings were forwarded for chemical examination. Atropine was detected in the stomach-washings of both the victims who recovered under treatment.

Robbery by drugging with Chloroform—A case of robbery in which the victim, a woman of the town, was drugged with chloroform by two unknown persons who visited her on the night of the 14th December, 1914, took place in the Butolla section of Calcutta. The history of the case showed that she drank liquor with these persons and shortly after fell asleep. When she woke up, she found the visitors had gone and her ornaments missing. A bottle containing a small quantity of colourless liquid had been left in the room by the visitors. This was sent for analysis and was found to contain chloroform scented with essence of roses.

Yellow Oleander Poisoning (reported as a case of cholera)—The viscera of a Hindu female, aged about

17 years, were forwarded by the Civil Surgeon of Serampore for chemical analysis with the history that the relatives reported the case to be one of cholera, but the body was detained on suspicion and a *post mortem* made. The stomach was congested throughout and contained only three drachms of a reddish fluid. The small intestines were also congested in patches and were empty. The lungs, the kidneys, and the other internal organs were also congested. No opinion was given by the medical officer as to the cause of death. Yellow oleander in marked quantity was detected in the viscera by chemical analysis.

Cocaine Poisoning (fatal case)—A woman of the town, aged about 30, was found alive at about 11 P.M., on the 16th June, 1914, after which she retired to bed. On the 17th, at about 11-30 A.M., her paramour came to visit her, but finding the door of the room closed from inside, called her, but getting no response, forced open the door and found her lying dead on her bed. The Police Surgeon who held the *post mortem* examination found the mucous membrane of the stomach slightly congested. The stomach contained a quantity of semi-digested food stuff with no particular smell. The pupils were slightly dilated and the internal organs were congested. He forwarded the viscera to this office for chemical examination, and cocaine in marked quantity was detected in them.

Sulphate of Copper Poisoning (suicide)—Although sulphate of copper is a very common substance, it is not much used for either homicidal or suicidal purposes. The following case of fatal copper poisoning was referred by the Assistant-Surgeon of Kandi in the district of Murshidabad. A Hindu female, aged about 16, took sulphate of copper to commit suicide and died of its effects. The stomach and intestines presented the characteristic signs of copper sulphate poisoning. The stomach was somewhat contracted, there were patches of a greenish-blue colour on the peritoneal coat and the mucous membrane presented a corrugated appearance, stained blue throughout. The stomach contained about eight ounces of a greenish-blue fluid. The whole of the small intestines presented a bluish appearance, most marked in the duodenum. The mucous membrane of the rectum was congested, and it contained greyish-blue coloured fecal matter. The internal organs were also congested. The viscera of the deceased and her vomit were forwarded for chemical examination, and sulphate of copper was detected in both.

Prussic Acid Poisoning (for failure at the University Examination)—A sad case of death by hydrocyanic acid, self-administered, was referred to this department by the Coroner of Calcutta. A Bengali student, named B. C. B., aged about 23 years, got plucked in the last I Sc Examination. This he took much to heart, procured a bottle of dilute hydrocyanic acid, and swallowed the contents. There was time to remove him to the Medical College Hospital where he died about 15 minutes after admission. Such delay in the fatal termination of cases of hydrocyanic acid poisoning is rather of unusual occurrence, death in such cases usually happens within a few minutes. The bottle was found lying by his side. The Police Surgeon who held the *post mortem* examination noticed slight congestion of the stomach and a smell of prussic acid in the contents of the stomach which were forwarded for analysis, and hydrocyanic acid was detected in them. The bottle also contained a few drops of dilute hydrocyanic acid.

Aconite in Toddy—Toddy-sellers and vendors of country liquor not infrequently add poisonous indigenous drugs, such as aconite, *dhatwa*, etc., to their ware to increase its intoxicating effects, and fatal results fol-

lowing the use of such drugged drink are not uncommon. The following case referred by the Civil Surgeon of Gaya is to the point. Two men drank toddy, developed symptoms of poisoning, and both died. The Civil Surgeon of Gaya forwarded the vomit and the stools of the deceased in which aconite was detected. Eleven earthen pots used for collecting toddy, and each containing the fermenting liquid, were also forwarded for examination. Some of these pots were found in the house of the deceased and the others taken down from date trees placed there for the collection of the juice. Aconite was detected in the contents of nine out of these eleven earthen pots.

Powdered Glass used as a Poison—The Civil Surgeon of Howrah referred a case in which the cook of a European guard attempted to poison his master with powdered glass. It was alleged that the cook mixed powdered glass with the meat-curry prepared by him for his master who took a portion of it, and suspecting something wrong with it, made over the remainder to the Police who forwarded it to this department for chemical examination along with the stool of the complainant which he passed after taking the meal. Coarsely powdered glass (with many small sharp fragments) were found both in the curry as well as in the stool of the victim.

ANTI-TUBERCULOSIS WORK IN BOMBAY

THE Report written by Dr. John A. Turner and Khan Bahadur N. H. Choksy of the work done by the King George V Anti-Tuberculosis League, Bombay, in 1914, is just to hand, and is an interesting document.

The need of more accommodation for the proper treatment of this disease is shown by the fact that in Bombay about 2,000 cases of tubercle die yearly, yet there are so far only 42 beds provided for these cases, *viz.*, 20 beds at the J. J. Hospital, 12 at the Cama, and about 10 at the Adams-Wyhe Hospital.

We quote the following extracts from the Report—

The general conception of Tuberculosis is still confined to pulmonary consumption, people have not yet come to realise that tuberculous infection of the system is liable to show itself in various other manifestations. The League has made an effort by its leaflets to spread this much-needed knowledge, by indicating that scrofulous enlargements of glands, diseases of the bones, joints, and the spine, pleurisy, and abdominal tuberculosis in infants and children, accompanied by pain and swelling, persistent diarrhoea and wasting are all manifestations of but one infection. This is further borne out by the report of the Medical Officer, which shows that among the cases that came under his observation all these manifestations existed. There were treated at the Dispensary 270 cases of enlarged glands, suppurating and non-suppurating, 593 cases of pulmonary consumption, 70 cases of abdominal tuberculosis, 39 cases of tubercular diseases of the joints and spine, 58 cases of tubercular abscesses, and 12 cases of pleurisy. In addition to the above, tuberculosis also infects such other organs as the kidney, the adrenals, the spleen, the membranes covering the brain, etc., all of which are well illustrated in the photographic enlargements in our Museum.

The Laboratory work done was as follows—

| | |
|-------------------------|---|
| Examinations of Sputums | 350-positive in 20% of tubercular cases |
| Von Pirquet's Reactions | 250-positive in 80% of cases |
| Examinations of Blood | 50 |
| Do of Urine | 40 |
| Vaccines | 3 |

The difficulties of Notification are then discussed—

Though tuberculosis is a notifiable disease, compulsory notification is not yet enforced in the city. Considering that there exist four to five cases to every death reported from tuberculosis, the statistics of the Health Department show that there are approximately about 10,000 cases in the city. The number, however, must be considerably larger especially when the Mahomedan Purdah population is taken into account. The League has therefore touched but a fringe of the tuberculosis problem. About 1,000 cases have come under observation, and of these 593 were found to be suffering from pulmonary tuberculosis. It is only by a further development of the League's sphere of activities that cases could be reached. And compulsory notification is a means to this end. The League should now suggest to Government the desirability of making the notification of tuberculosis compulsory, at least in this city, as a tentative measure, before applying it to the Presidency as a whole. Only a very small minority of the cases of tuberculosis in the city actually come under our notice, as very few are reported. The following table will give an idea—

| | 1911 | 1912 | 1913 | 1914 |
|--------------------------------|-------|-------|-------|-------|
| Deaths from Tuberculosis | 2,668 | 2,794 | 2,152 | 1,889 |
| Cases of tuberculosis reported | | 40 | 84 | 44 |

The proportion between notifications and deaths from pulmonary tuberculosis varies greatly in different parts of England, and it would seem that when the notifications of phthisis do not number more than four or five times the deaths, the inference is failure to notify.

ANTI-TUBERCULOSIS WORK IN LAHORE

DR. ARORA submitted the Annual Report of the Public Health Department of Lahore.

The notice of the anti-tuberculosis work is of special interest. There were 384 deaths from phthisis reported in Lahore or five per cent of all reported deaths.

The tuberculin treatment is carried out by Dr. Khanna, of lung tuberculosis 14 cases were so treated, and in 11 it is said that the disease was "arrested", of 17 gland cases so treated the disease was "arrested" in 6 and 5 "improved".

The following remarks are made by Dr. Arora—

Since the discussions which took place at the last All-India Sanitary Conference held at Lucknow, there exists considerable difference of opinion as to the efficacy of the tuberculin treatment and specially so in the hands of those people who are not experts in the matter. It is true that tuberculin treatment in the hands of unskilled general practitioners may become a source of danger to the life of the patients treated, and every precaution should be taken to safeguard against the spread of the same, but experience alone will prove whether in an Indian town like Lahore there lies any danger if the tuberculin treatment be carried out at an Institute specially meant for the purpose and by a

medical man specially qualified for the same. No doubt under existing conditions of the habits of people and their mode of housing in Indian towns as also their indifference to, if not ignorance of, the importance of sanitary mode of living it becomes almost hopeless to follow up these cases in their homes and retain them for a sufficient length of time to undergo treatment in an effective manner. But the state of affairs is bound to improve for the better and, with spread of knowledge regarding sanitation and appointment of Health Visitors, it may reasonably be expected that better results will be obtained.

We must not lose sight of the fact that the Institute is not solely for tuberculin treatment. The matter is under consideration, and steps will soon be taken to provide free medicinal treatment to those cases, which form a majority and which are not fit for tuberculin treatment. As the fame of the Institute grows as a centre of expert advice and treatment, whether tuberculin, medicinal, or otherwise, and people begin to have more confidence in the same, the number of patients is bound to swell up, and perhaps it may be possible to do something to alleviate human suffering from this dire malady. The object of the Institute is also educative and preventive as well as to act as an information bureau to disseminate information about tuberculosis generally.

THE AMRITSAR HEALTH REPORT

There is much of interest in the Health Officer's Report on Amritsar in the year 1914 which was written by Dr S Rozdon, DPH, the Health Officer.

The following quotation shows the conditions which the Health Officer has to struggle with —

It will be just appropriate if at this stage I discuss very briefly the true cause of all the epidemics, plagues, and infections, which visit the town of Amritsar so frequently. In a nutshell it is due to want of air and light which mother Nature has so unsparingly provided us and of which we deprive ourselves and our children so often by building dark, dingy, and ill-ventilated pigeon holes two or three stories high right inside a tortuous, narrow lane encroached upon by private Tharas of adjoining houses and polluted by animal and human excretion and garbage from the neighbouring houses. Overcrowding due to poverty, joint family system, and ridiculously exaggerated notions of security from thieves by residence inside the city is popularly common. Amritsar women seem to be very fond of leading gregarious lives, and it is an ordinary sight to find ladies belonging to fairly rich class of Hindus especially, making doorstep acquaintances, sitting on Tharas of their houses, and enjoying a chat with women on the adjoining Thara eating all sorts of things "going" and throwing wastepapers or pattas, banana skins, etc., right into the lane. Children and grown-up women have been seen by me committing nuisance in the public drains to stink there for hours till *safai* men come for its removal. Such are the perverted tastes that the Health Department is expected to set right. We do not live in an ideal world, and the people we have to deal with live under conditions far more conducive to race-deterioration and race degeneration than to the converse, therefore we have a good deal to fight against.

VITAL STATISTICS

Our machinery is fairly complete so far as the submission of statistical return is concerned but unfortunately the cause of death is entirely overlooked. From the point of view of a sanitarian occurrence of a

death hardly signifies much unless its true cause is forthcoming, and it is here that the Health Department deplorably lacks. Without endeavouring to reflect on the ability of medical practitioners of Amritsar generally I cannot help observing that a number of them, who are quacks and enjoy good practice amongst the credulous public, lack in their duty by giving absolutely wrong diagnosis to the relatives of the deceased who in their turn give the same cause to the Mohairi, with the result that a wrong entry is made in our registers. Be it due to their ignorance about the science which they profess to know, the Department loses sight of the true state of affairs all the same, and is unable to draw accurate inferences from the recorded cause of deaths.

The staff consists as it is of crazy Munshies pretending to be Hakims also requires reformation. At the last Punjab Sanitary Conference I advocated very strongly the introduction of medical men in this branch of Municipal Administration, and the Punjab Government has already invited the attention of the local bodies towards the importance of this subject.

PLAGUE

I have seen families wiped off by plague, and when a couple of members who survived were advised to leave the house they would treat our proposal in a most indifferent manner. Rationalism should draw a moral from such fatalism and should in its turn certainly cling to its own dogmas with greater tenacity. What a man takes centuries to do Nature does in no time, and it is anticipated that serious epidemic of plague would make the masses realize the soundness of vacating infected houses temporarily and co-operating heartily with our proposals for their welfare.

RAT DESTRUCTION

Trapping — It being settled that plague is primarily a disease of rodents like rats, marmots, squirrels, etc., it is only reasonable that our energies should be directed against them.

From a sanitary point of view the presence of rats in houses is most objectionable. It will be interesting to discuss their existence economically. The damage and loss of property due to their diurnal and nocturnal invasions, daily consumption of wheat, gram, and other food stuffs, and the damage done to humanity is beyond imagination. During the year under report 20,814 rats were caught and destroyed. Deducting 10 per cent, i.e. roughly 2,000 for rats which are harmless-mice, small rats, etc., this leaves 18,000 black rats (*Mus Rattus*) and brown rats (*Mus Decumanus*). Assume half of these are females. Thus 9,000 females were destroyed during the year under report. One female rat can have six litters of young every year and on an average either eight or ten in each litter, and is thus capable of producing forty-eight rats per annum. Of these forty-eight, twenty-four are females and at the age of six months each produces a litter of eight. Therefore one can calculate the number of rats prevented from coming into existence during the year.

INOCULATION

The people would not come forward for inoculation in masses although they have just begun to appreciate its advantages. The reasons of weakness, physical debility, shortsightedness, etc., following inoculation which used to be advanced by them previously are fortunately vanishing and those of imaginary pain at the time of operation and severe illness afterwards and other similar statements are finding favor instead. The educated people affirm that the immunity given by inoculation is not permanent. However, in the year under report 868 inoculations were performed by means

compared to 206 in 1913. While Government High, Baij Nath Public, Church Mission and M A O Schools came forward with a good round number of boys for inoculation the Hindu Sabha School having 700 students inoculated only 50. Unfortunately for the said school twelve deaths have already occurred there from plague.

I would very strongly urge the necessity for annual inoculation in all the schools every year, and suggest the Inspector of Schools to take necessary steps for popularising the operation.

DIFFERENTIAL DIAGNOSIS OF SMALL-POX AND CHICKEN POX

In India where chicken-pox is a disease of adults and where in communities like prisons, asylums, or regiments the disease is seen in all degrees of mildness and virulence, it not infrequently happens that severe cases of chicken-pox are mistaken for small-pox. The following note on the differential diagnosis of these two entirely different diseases is worth reproducing from the *Journal A M A* (March 13, 1915) —

CHICKEN-POX, VARICELLA

This simple, acute, contagious disease, generally very mild, and rarely requiring any medication or treatment need not be mentioned here except that it is frequently confused with small-pox. In many parts of the United States the frequent occurrence of small-pox necessitates that every physician should be alert to differentiate these two diseases. The different points of diagnosis between mild small-pox and chicken-pox cannot be better stated than in the paper of Dr H W Hill, Director of the Division of Epidemiology of the Minnesota State Board of Health. He states that 10,000 cases of small-pox occur annually in Minnesota alone, and that this large number is due primarily to non-vaccination, and secondarily to mistaken diagnosis, allowing the infection of others. Hill quotes statistics to show that in one investigation over a period of twenty-one years there were thirty times as many cases of small-pox and nearly two hundred times as many deaths occurring in the unvaccinated as in the vaccinated. Health Boards should ponder this fact, and then act.

He states that several misconceptions of these two diseases are prevalent, namely, that chicken-pox occurs only in children, that the small-pox eruption does not invade the scalp, that the small-pox eruption alone invades the palms of the hands and the soles of the feet, and that chicken-pox lesions are not umbilicated. All of these points of supposed differential diagnosis are incorrect.

The differential points of chicken-pox and small-pox are as follows —

"In chicken-pox. The incubation period is at least two weeks. There is no definite history of a previous attack of this disease. A history of successful vaccination within a few years or a definite history of a previous small-pox causes presumption that the disease is chicken-pox. There is usually no history of a stage of illness before the eruptive stage. The eruption appears in the first twenty-four hours of the disease, beginning on the back, chest, or face, and is most profuse on parts of the skin covered by clothing. The eruption appears in successive crops on successive or alternate days, so that various stages of the lesions may be present at one time. The lesions are round and oval, and the margins are not crenated. The eruption passes through the following stages: 1 Macules lasting a few hours. 2 Soft, superficial papules lasting a few hours. 3 Clear, thin-walled tense vesicles each

lasting a few hours (these vesicles may be readily broken and appear cupped or pitted, and the weeping vesicle then quickly becomes crusted). 4 The crusts, lasting a shorter or longer time, depending on the treatment (each crop completes its cycle from macule to crust in from two to four days). 5 Pitting may occur, but the pits are few, superficial, and often oval.

"In small-pox. There is an incubation period of from twelve to fourteen days. There is no definite history of a previous attack of this disease, and no history of successful vaccination within from five to seven years. There is an invasion stage of from two to three days with headache, backache, chills, fever, etc. The first signs of eruption are on the third or fourth day after the onset of symptoms, and the eruption begins on the face and wrists, and is most profuse on the skin not covered by clothing, and the palms of the hands and the soles of the feet are often attacked. The eruption develops in one crop, the lesions appearing steadily from twenty-four to forty-eight hours, the face lesions being usually further developed than those on the body. The lesions are round at all stages, and the margins are not crenated, all those of the same stage of development are usually the same size. The lesions occur as flea-bite macules lasting twenty-four hours, and then as papules which feel 'shotty' under the finger, also lasting twenty-four hours. The next stage is umbilication of the shotty-feeling vesicles, thus lasting from twenty-four to seventy-two hours. Next firm, opaque pustules form, each lasting from four to six days, and this formation of pus is accompanied by what is termed the secondary fever of small-pox. Next, firm crusts appear at about the thirteenth day of the eruption, the fifteenth day from the beginning of the disease. Large, dense scabs form with tenacious, dark-colored plaques, which may last days, or even weeks, if the skin is not properly treated. Later, where there is marked pustulation, deep pitting occurs.

SNAKEBITE AND ANTIVENENE

THE Director-General Indian Medical Service, has brought to the notice of the Government that reports on the treatment of snakebite by antivenene have been very few—not more than three or four annually. If the remedy is used so seldom as this would seem to imply it is obvious that in many instances antivenene is merely indented for as an item of equipment and seldom used. It is therefore of importance to find out to what extent the remedy is used, and in all cases a report in the following form should be sent direct to the Director of the Central Research Institute, Kasauli —

- 1 Name, age, and sex of patient
- 2 Date and time of bite
- 3 Position of bite
- 4 Was snake identified?
- 5 Was a ligature applied or any other local treatment employed?
- 6 Interval that elapsed between bite and administration of antivenene
- 7 Dose of antivenene and method of administration, intravenous subcutaneous
- 8 Symptoms—local and general
- 9 Result—death or recovery.
- 10 Remarks.

"TWILIGHT SLEEP"

UNDER this title the American Medical papers have recently had many articles, and already the literature on the subject is of considerable dimensions. The following article from the *China Medical Journal* (May, 1915) sums up much recent writing on the subject, and is therefore worth reproducing in full —

From an article published in the February 13th, 1915, number of the *New York Medical Journal*, by John Osborn Polak, M.D., F.A.C.S., of Brooklyn, N.Y., the following extracts are taken —

"Dammerschlaf, as twilight-sleep is called by the Freiburg School, is the application of partial narcosis to labor, produced by the administration of morphine and scopolamine. The narcosis is so light as to eliminate only the memory of the subjective pain, without interference with the uterine contractions. Its previous employment in America has been more or less sporadic and unsuccessful. We believe this was due to two causes —

"1 We have attempted to follow routine doses with unstable preparations of the drug. We have failed to individualize the patient, consequently the children were narcotized or asphyxiated, the labors were prolonged, and forceps became a frequent necessity. Delirium was common, and third stage inertia with hæmorrhage was no infrequent complication. The children and women were over morphinized."

"In Gauss's latest report he records 4,111 cases of labor in which morphine and scopolamine have been employed with a lower maternal and foetal mortality than has been secured by any ordinary clinic in Europe. These results have been obtained, first, by individualizing the patient and minimizing the dose, second, by giving each woman a full test of labor without reducing her physical strength by subjecting her to the nerve racking pain of prolonged labor, third, by limiting the number of vaginal examinations, and following the course of labor by abdominal and rectal examination, hence all operative procedures were done in dilated passages, and trauma to the soft parts and infection have been reduced to a minimum."

"Statistical studies, both here and abroad, show us that it is possible to produce amnesia and partial analgesia in about ninety per cent of the cases in which morphine and scopolamine are used, hence we feel that a woman is entitled to a painless labor if she can get it without increasing her own risks or those of the unborn child. Suffering exhausts more than physical labor."

"We no longer ask our patients to submit to a surgical operation without either ether or gas. Many of us use ether or chloroform as a routine during the perineal stage in ordinary labor, we likewise narcotize the woman for a forceps delivery or a primary repair of the pelvic soft parts. Why not extend this comfort to her throughout labor by producing amnesia and analgesia with safe doses of morphine and scopolamine, which do not, if judiciously used, affect uterine contractions, once these are established."

"Painless labor by partial narcosis, with scopolamine and morphine, is an assured fact, and when used in properly selected cases, where the foetal and pelvic relations are normal, or approximately normal, permits nature to take time to prepare perfectly the cervix, vagina, and vulvar orifice for the passage of the foetus, without physical or muscular fatigue."

"Scopolamine and morphine shorten the first stage of a primipara. This is not so of the second stage, which may be prolonged beyond safe limits, especially if too much morphine is used."

"Scopolamine and morphine anesthesia is not without danger. Neither is the production of narcosis with ether free from accident or complication, yet in competent hands these dangers may be and are minimized."

"The mother may be particularly susceptible to either scopolamine or morphine, the former causing delirium and the latter coma. The respirations may become arrhythmic and reduced to five or six a minute. The kidney secretions may be diminished, labor may be prolonged, especially the second stage, uterine atony is possible, and post partum hæmorrhage has been charged to the method by the American observers."

"These are the fault of the doses and can be anticipated and prevented by intelligent administration, by the use of the minimum dose to produce sleep, the individualization of each patient, and the very free administration of water throughout the narcosis. It may even be justifiable in cases with kidney lesions, to give saline solutions by hypodermoclysis or colonic irrigation during the labor."

"Many of the children suffer from oligopnea for several minutes, and it is common for the child not to cry for a minute or two after birth, though the fetal heart shows no disturbance in rate or rhythm. There is, however, no cyanosis unless the dose has been too large, given at too frequent intervals or too late in the labor, or the second stage has been allowed to continue too long. The child, after stretching itself as if awaking from a restful and peaceful sleep, cries lustily."

"From our observations, both here and abroad, we are convinced there is no reason why Dammerschlaf should not be used in all women who show the physical signs of active labor, provided the women are under continuous and intelligent observation. It is distinctly a first stage procedure and should not be begun if labor is far advanced."

The following were the suggestions made by Dr. Polak as to technique —

1 The patient must be definitely in labor, with uterine contractions, preferably every four or five minutes. The woman should be in bed, in a well ventilated darkened room, away from noise and excitement.

2 Careful observations should be made and recorded of the pulse, the respiration, condition of pupils, and the condition and frequency of uterine contraction, the woman will ordinarily make outcry and give evidence of pain at the time of contractions, but will immediately fall into a sleep and will not remember it.

3 She requires large quantities of water but no food. The water would best be given just after the pain and at time of injection.

4 The progress of the labor must be constantly watched by repeated abdominal and rectal examinations. Vaginal examinations invite sepsis. To follow the position of the shoulder, as it descends and rotates inward toward the median line, is a good index of the progress of labor.

5 The fetal heart-beats must be listened to and recorded every half hour, both in the interval and during pain. Arrhythmic, slow, or too rapid heart-beats call for cessation of drug and rapid delivery. It is not always due to the drug.

6 Solutions of the drug must be absolutely pure. Hyoscine cannot be substituted.

7 The doses differ in individual cases. It is easier to induce sleep early in the first stage. Danger to the child is greater if sleep is induced later by more medicine.

8 Intelligent employment of the methods shortens the first stage, on the other hand it may prolong the second. This must be guarded against, and if the perineal stage lasts over an hour in multipara, or two hours in primipara, delivery should be accomplished with the patient in the Schmitt position (extreme flexion).

of thighs on abdomen), with expression of the fetus, or with low forceps

9 The third stage is not influenced by scopolamine or morphine, and, when properly used, the drugs do not predispose to post partum hæmorrhage

10 Low forceps, perineotomy, and primary suture of pelvic floor injuries can all be done without further anaesthesia

Dosage Polak advises adherence to the Frieberg method of individualizing the patient, giving an initial dose of morphine hydrochloride

When the labor is fully established one and a half ampoule of each drug (morphine gr $\frac{1}{8}$ to $\frac{1}{6}$, scopolamine 0.0003) (gr $\frac{1}{100}$) is given as the initial dose. Forty-five minutes later one ampoule of scopolamine is administered alone. One hour later a half ampoule of each is given. The amnesia is maintained by giving the scopolamine alone in half ampoule doses every two hours. It is seldom necessary to repeat the morphine again, though in long labors it may be given with every third dose, or every six hours

The test for amnesia is to show some object and in half hour ask if it is remembered

Polak ends by saying "In conclusion, we are more and more impressed as our experience increases, with the wide field of usefulness that scopolamine analgesia will cover in modern hospital obstetrics. We feel, however, that the method should be considered distinctly as one for the expert in the Maternity Hospital"

Interesting articles for and against the use of the "twilight-sleep" are found in *The American Journal of Obstetrics and Diseases of Women and Children* for December, 1914, and January, 1915, also in *Medical Record* of December 5th, 1914

MARSCHALKO writes in *Deuts mediz Wochensc* (June 1915) from the dermatological clinic at Koloszar that seventeen years' experience has amply established the efficacy of purified turpentine oil, oleum terebinthinæ rectificatum, in destroying lice and their eggs. It is best applied in the form of a spray, and destroys all kinds of vermin, even big roaches. The fumes also suffocate lice in time, even when quite diluted. The purified turpentine does not irritate the skin nor stain the clothing, while it evaporates so rapidly that it has no toxic action on man if there is sufficient ventilation. It is also cheap, and is not so inflammable as benzine. At his clinic the hair is sprayed with it and a flannel cloth dipped in it is tied over the head with a towel. In the morning the head is found free from live vermin, no matter how thick they were the day before. The turpentine spray has been found a satisfactory solution of the body-lice question in the trenches where it has been applied. It can also be used, incorporated to 50 or 65 per cent, in a salve. Even sheepskin can be cleared of vermin with the turpentine spray

ESFILL recalls that the workers in the sulphur mines of Sicily are not liable to contract malaria in that hotbed of the disease. With the discovery that infection was conveyed by the mosquito this "miracle" has been explained. The mosquito is repelled by the odour of sulphur

In itself sulphur has no odour, but, in contact with the secretions of the skin, sulphuretted hydrogen is generated in minute amounts, enough to repel insects. This fact has been utilized satisfactorily in warding off vermin among the soldiers. The underclothing is turned wrong side out and dusted with precipitated sulphur. It is brushed into the texture of the undergarments using several tablespoonfuls. No effect is apparent until the sulphur has been worn for twenty-four hours. Then all vermin leave the bearer. The disinfecting action of the sulphur may have a further useful influence in warding off furuncles, etc. — (J A M A)

Reviews.

A Guide to the Use of Tuberculin — By Major A W R COCHRANE, M B (Lond), F R C S (Eng), I M S, and Major C. A. SPRAWSON, M D., B S (Lond), M R C P, I M S. London: John Bale Sons and Danielsson, 1915. Pp 181. Price 6s net

THE title of this handy little book exactly describes its contents, and we think that all who read it will agree that it is likely to become, for India at any rate, the guide to the use of tuberculin

The authors have had exceptional opportunities of gaining experience in the treatment of phthisis by tuberculin, Major Cochrane in the large sanatorium at Bhowali, and Major Sprawson in a special tuberculosis hospital in Lucknow and also in the King George's Hospital, Lucknow. The authors do not discuss the value of tuberculin. They regard the treatment as being of established utility, and concern themselves only with the methods by which the greatest advantage may be derived from its use

In doing so they begin by giving very simple and practical instructions for making the dilutions and giving the injections, and then go on to discuss the types of reaction that occur, and illustrate these by actual charts from their own cases

It is, however, the chapters on dosage which constitute the special feature of the book and which place it ahead of any other book that we know of as a guide to the practitioner

The general principles of dosage are dealt with on orthodox lines, but the rules for arriving at the dose suitable for any particular case are stated so clearly and are so fully illustrated by charts of temperature and weight that a medical man with no previous experience of the treatment need not hesitate to use tuberculin, if only he first masters the pages dealing with this subject

The problem which constitutes the real difficulty for the beginner in the use of tuberculin,

and the one that is slurred over in the other books on the subject, is "where to begin," for in some cases it is dangerous to begin with large doses and in others weeks or even months may be wasted by gradually working up from infinitesimal doses.

The authors have tackled this question with courage and have divided the cases of tubercle of the lung into types and classes into which it is easy to fit any patient after a period of observation, and when once the patient is fitted into the proper class the general lines of treatment are definitely specified.

A very good feature of the book is the large number of illustrative charts. These would render the book a valuable permanent contribution to the subject apart altogether from the rest of the contents. Tuberculin is being extensively used in India and in many cases the treatment is discredited owing to a lack of just such knowledge as may be easily obtained from this book.

It is not fair to criticise the writers because they have stuck closely to their text, but we cannot help wishing that they had given us the benefit of their experience on the subject of the general treatment of tuberculous disease. There is a tendency on the part of medical men and still more on the part of patients to regard tuberculin as the one thing needful and to neglect the other essential lines of treatment. Perhaps in the next edition the scope of the book may be enlarged.

The chapter on tuberculin as a diagnostic agent plainly states the limitations and dangers of the tuberculin tests.

There are special chapters on pulmonary tuberculosis in children, on the contra-indications to the use of tuberculin, and on the treatment of tuberculosis other than pulmonary.

The book is very handy in size, the type is clear, and the general get up is in the usual excellent style of the publishers.

We congratulate the writers on having produced the best and most practical book on the use of tuberculin that we have come across.

Sanitation in War—By MAJOR P. S. LEELEAN, R.A.M.C. London J. & A. Churchill, 1915. Price, 5s. net.

THIS is an admirable little book, full of valuable information and in very small space. We have read it with profit and with pleasure, and can confidently recommend it to medical officers going on service.

A glance at the contents will show the reader the vast amount of information compressed into 260 small pages. A chapter on physical fitness for war begins the book with useful notes on recruiting and training. The food of the soldier is discussed. On the ration question Major

Leeleean's attitude is wise and judicial. He would not issue it if a suitable alternative such as cocoa or soup were available and only with the evening meals, and the selling of the ration to other men should be made a punishable offence.

On the tobacco question he is sound. Excess of cigarette smoking is bad, but the allowance of two pipefuls per diem, if not exceeded, is all to the good. There are some excellent remarks on the soldiers' boot and feet.

The lecture on anti-typhoid inoculation is altogether good, and that on the march is full of interesting facts and sound physiology. Sickness in the army is dealt with in the Fourth Lecture and is an excellent chapter. The marked reduction on sickness in the army in India in the past ten years is emphasised and explained.

The rôle of insects in war forms the subject of Lecture V, and the deadliness of the domestic fly is insisted upon. In a few pages a very complete account of this too much tolerated pest is given. Bugs and lice too are dealt with. For *pediculus capitis* a mixture of kerosene and olive oil (equal parts) is recommended to be rubbed on the head and not washed for 24 hours. Lecture VI deals with Medical Organisation and Administration in the Field, and the next chapter with Conservancy in the Field is a subject of vast and vital importance. Many must have wondered how latrine accommodation is managed in the trenches. Offshoot trenches were first tried, then ordinary filth trenches behind hills, contours, or other shelter, and finally buckets were used in the bombproof dugouts, to be removed on relief when the contents are buried and the empty buckets brought back on the return to the trenches.

Water and water supplies are adequately dealt with, and many methods of purification are described.

We can confidently recommend this useful and practical little book.

Amœbiasis and the Dysenteries—By LEE FLYNN P. PHILLIPS, M.D. London H. K. Lewis Demy 8vo. Price 6s. 6d. net.

EXCEPT the book by Sir Leonard Rogers on the Dysenteries no modern book exists on this the most important disease of the tropics.

We, therefore, welcome this book by Dr Phillips, the Professor of Medicine in the Egyptian Government Medical School.

As its title implies it deals in a major degree with amœbic dysentery but also describes the other forms—bacillary, ciliate (balantidiasis), flagellate, and bilharzial. The clinical description of acute and chronic intestinal amœbiasis are good, and the old Calcutta Medical College Hospital method of examining the stools, so well described by Goodeve, Chevers, and K. Macleod, is given in detail. A good attempt is also made to differentiate clinically between the

amoebic and bacillary forms. He says that in bacillary dysentery the onset is sudden and accompanied by fever whereas in the amoebic form there is little or no fever. Moreover our author tells us that bacillary dysentery "tends to occur in epidemics whereas amoebic dysentery is endemic rather." This is true enough, but Jaul dysentery is not epidemic. It is rather persisting and endemic and constantly renewed from outside, yet all observers have shown that it is mainly bacillary and is very seldom followed by liver abscess. Dr. Phillips entirely recognises the able work of Sir L. Rogers on the presuppunative stage of hepatitis, and, indeed, his chapter on hepatitis and liver abscess is up-to-date and on the whole satisfactory. In prophylaxis he emphasises the danger of the carrier, both amoebic and bacillary.

The bacteriology of bacillary dysentery is given at length. The clinical description is good in treatment while he refers to the saline and other successful methods. He lays chief stress upon the antitoxin treatment.

The book concludes with a very useful bibliography. Unfortunately it was not found possible to give the book any illustrations but no doubt the book will run to another edition when we hope that this serious omission will be supplied. Meantime we can heartily recommend the book to the attention of our readers.

Materia Medica and Therapeutics.—By MITCHELL BRUCE and W. J. DILLING. 10th Edition, revised. London: Cassell & Co., Ltd. Price 6s 6d.

WE remember this book for nearly thirty years past. Bruce's *Materia Medica* has run into 58,000 copies and ten editions, and here it turns up adapted to the 1914 B.P. as fresh, as accurate, and as useful as ever.

There is no volume we know which teaches therapeutics better. It is this aspect of the book rather than the *Materia Medica* portion which has made it so popular with and useful to generations of students. No more useful chapter exists than Part III of this book on physiological therapeutics and the therapeutics of the various systems.

It has always been a favourite with students and practitioners and the new edition deserves this confidence equally with the previous ones.

The Medical Annual, 1915—Bristol: J. Wright and Sons, Limited. Price 11s net, post free.

THE historic year 1915 is the 33rd year of issue of the *Medical Annual*, published yearly by Messrs. John Wright and Sons, Bristol.

It is satisfactory to find this invaluable book of reference issued "as usual," in spite of the fact that many of the contributors are working under

exceptional strain from military duties and contingent work.

The present volume has special article on Naval and Military Surgery, and in addition a valuable *résumé* of the new edition of the B.P. The book is fully and completely illustrated as usual, and we may call special attention to the complete article on Military Surgery by Colonel Louis LaGarde (U.S.A. Army), which is exceptionally well illustrated.

The tropical diseases articles are complete *résumés* of current literature and have been written by Sir Leonard Rogers, I.M.S., as an up-to-date synopsis of the year's work. Few can afford to be without this book.

Occupational Affections of the Skin—By R. PROSSER WHITE, M.D. London: H.K. Lewis, 1915. Pp. x+165, Demy 8vo. Price 7s 6d net.

THIS is a very useful book, not yet largely perhaps in India but certainly for all medical men working in manufacturing towns and areas.

A rapid review of the contents of the book will best enable our readers to judge of its value. After a preliminary chapter on nomenclature, the protective resources of the skin, predisposing influences, classification, and diagnostic aids. Dr. Prosser White describes skin troubles due to such causes as pressure, cold, electricity, and lightning, X-Rays, heat, sunburn and scalds, then skin inflammations due to acids and alkalis such as waterglass dermatitis, salt dermatitis. Then come the dermatomycoses, diseases produced by dry dusts, used in trade processes, as copper and antimony smelting, then nasal ulcers in gunpowder workers, and bichromate factories, or itches such as drysalts, bakers, cooks, masons, and carbide ulceration. There are described the dermatitis caused by fulminate of mercury, etc. In Chapter IV are discussed polishers and turpentine dermatitis, or those occurring among electroplaters and photographers, or in the use of arsenic, chrome, in tanning processes, or in tobacco rolling.

Chapter V deals with the numerous skin troubles, due to various processes in the use of petroleum and tar distillates including "paraffin cancer." There is then a full chapter on the aniline dyes and drugs, on dermatitis due to certain plants, and a fine chapter entitled *Zoetic Dermopathy* or dermatitis due to cocci, bacilli, fungi, uncinaria (hook-worms), insects, mites, etc.

The whole book is full of novel information, and can strongly be recommended to all who have patients working under such conditions.

Defective Children.—Edited by T. N. KELYNACK, M.D. Calcutta: Butterworth and Co. (India), Limited. Price Rs. 5-10 net.

THIS is a very valuable book and shows the enormous amount of work which is being done in

European countries and in America on the subject of child welfare

The Education Act, 1907, instituted powers whereby a national system of medical inspection was provided for children attending elementary schools in England. An effective school medical service has been organised, 317 areas have been organised, each with a principal school medical officer, and there are 841 school medical officers, who in 1913 medically examined no less than 1,830,000 school children.

Systematic medical examination has revealed an enormous amount of physical defect, defects of vision, hearing, adenoids, decayed teeth, uncleanness of body, ringworm, tuberculosis, heart disease, etc.

The nation has become awake to the urgent necessity of conserving its children, and the sphere of an education authority is not confined to training the intellect only but must be extended to comprise the fitting of the child in every respect for its purpose in life, physical as well as mental.

The present volume is edited by Dr Kelynack and consists of 27 chapters written by experts on each subject. The headings of a few of the chapters will show the material of the book — Defective children, the mentally defective child, idiots and imbeciles, the epileptic child, paralytic cripples, tuberculous cripples, deaf children, speech defects, spinal defects, heart diseases, the rachitic child, defective children in various countries. Scotland, Ireland, Canada, United States, France, Germany, and Hungary.

The book will prove of undoubted value not only to school doctors, but to all interested in educational and philanthropical institutions. We can strongly recommend it.

SPECIAL ARTICLE

THE REPORT OF THE GENERAL HOSPITAL, MADRAS

THE great General Hospital, Madras, is the only one of the big hospitals in India which prints, and publishes, a complete and detailed Annual Report, and as usual it is well worth reading, as the extracts we herewith make clearly show.

The Administration Report for 1914 was written by Lt-Col W Molesworth, CIE, IMS, the Senior Medical Officer, and is replete with details of interest to superintendents of large hospitals. The accommodation is for 500 patients, and a daily average of 439 patients were treated within the wards, and in addition a total of 62,854 out-patients or the huge daily average of 456 men, women and children.

The figures given of the totals treated for malaria are very variable, *i.e.*, over 11,000 in the year 1901 under 2,000 in years 1907—1910,

and over 9,000 in 1914. Does this reflect the incidence of malaria in the city of Madras?

The total number of operations done by the three Surgeons are over 1,100 yearly for each. We quote the following extracts from the report signed by Major F F Elwes, CIE, IMS, First Physician —

During the year there has again been a marked increase in the number of cases of malaria, 250 being admitted as against 160 in 1913 and 107 in 1912. Enteric fever has also been far more prevalent than usual, 85 cases being admitted as against 40 in 1913 and 23 in 1912.

Cerebral Malaria — Four cases of Comatose Cerebral Malaria were admitted. All recovered consciousness after treatment with hypodermic injections of quinine fourth hourly, but one case subsequently died from heart failure secondary to broncho-pneumonia.

Quinoidine in Malaria — The amorphous alkaloid quinoidine has been used in the treatment of a number of cases of malaria, and it appears to be quite as efficient as quinine, even when administered in considerably smaller doses than quinine is usually administered. Two tablets of quinoidine, grs 11 each, given night and morning, have almost invariably proved sufficient to reduce the temperature to normal and cause disappearance of the parasites from the peripheral blood in 72 hours or less in case of malignant tertian malaria whilst smaller doses generally suffice in benign tertian malaria. Whether quinoidine will prove more efficient than quinine in preventing relapses in malaria has yet to be proved as cases when they leave hospital can seldom be traced. No cases of deafness or other symptoms of cinchonism have occurred amongst those treated with quinoidine, but unfortunately it is not suitable for the treatment of children as it is at present only prepared in tablet form.

Emetine in Amoebic Dysentery — Hypodermic injections of emetine hydrochloride have continued to be used with remarkable success in amoebic dysentery, and even though amoebae are not found in the stools, emetine hydrochloride is invariably given, as far the majority of dysenteric cases admitted respond to this treatment evidently being of amoebic origin. Emetine, even when several injections are administered, does not however invariably prevent a relapse.

Lieutenant-Colonel Molesworth notes on the following cases from the wards of the Second Physician —

Pulmonary Tuberculosis — Eighteen cases were treated with Tuberculin emulsion after a preliminary course of streptococcus vaccine. The results were not satisfactory. In one case of early phthisis the result was good and the patient was discharged from the hospital cured.

Asthma — Thirteen cases were treated with stock and autogenous streptococcus and pneumococcus vaccines. One case received much benefit after a full course of autogenous vaccine for about three months. The other cases who had autogenous vaccine did not remain in the hospital long enough for a full course of treatment. They showed more or less improvement when in hospital.

Gonorrhoeal Rheumatism — Twenty cases were treated with injections of Polyvalent gonococcus stock vaccine. All the cases improved after a few injections of 2½, 5, 10, 15, and 20 millions. In two chronic cases the injections had to be continued up to a dose of 300 millions. Recurrence of symptoms were noticed in these cases after the injections of such massive doses.

Dysentery and Hepatitis—Emetin was given in all cases of amoebic dysentery and hepatitis with good results. Three grains of emetin given in three consecutive days is found to be sufficient to cause abatement of the symptoms in most of the cases.

Malaria—As usual there were many cases. Out of 105 cases in which the parasite was found in the blood, 59 were treated with quinidine (6 grains per day), 40 with quinine hydrochloride (15 grains per day), and 6 with quinine sulphate (15 grains per day). The results of treatment with quinine were equally satisfactory, if not more so than those treated by quinine hydrochloride. Compared with the figures of last year an increase of 32 cases is noted. The form of increase was of the malignant tertian and chronic types. Most of the cases came from Madras City and the surrounding villages.

A death-rate of 4.46 per cent of those treated, exclusive of moribund cases, is very satisfactory.

There were no cases of interest calling for special remarks.

Captain A. C. Ingram's notes of the work done in the wards of the Fourth Physician is mainly statistical, but he has an interesting note on **Emetin and Dysentery**, in which he maintains that 90 per cent of hospital cases of dysentery in Madras are amoebic. In one case large casts of the intestine were passed (to a length of no less than five feet). He thinks that in some cases even repeated cases of emetin will not cure them, and he follows it up with daily doses of Ipecacuanha. But is the finding of amoebæ enough to differentiate the cases as amoebic and thus necessitate emetin? It is generally agreed that it is a waste of money to give emetin in bacillary cases, which can be well or better treated in other ways. In mild cases of dysentery recovery, even rapid recovery, after emetin does not necessarily prove the amoebic nature of the disease. *Post hoc* is not necessarily *propter hoc*.

The following table given by Major A. Chalmers, I.M.S., show the work done in the Second Surgeon's wards.

The following are the important operations done during the year

| Disease | Total number operated | Cured | Relieved | Discharged otherwise | Died | Remaining |
|--|-----------------------|-------|----------|----------------------|------|-----------|
| Tumours | 21 | 10 | 3 | 1 | 5 | 2 |
| Varicose Veins | 1 | 1 | | | | |
| Varicose Lymphatics | 3 | 3 | | | | |
| Osteotomy | 1 | | 1 | | | |
| Fracture Wiring | 3 | 2 | 1 | | | |
| Amputations | 18 | 14 | 3 | | 1 | |
| Harelip | 2 | 2 | | | | |
| Mastoid and Middle ear disease | 10 | 5 | 2 | | 1 | 2 |
| Goitre (Removal) | 1 | 1 | | | | |
| Stricture Urethra (dilatation) | 16 | 7 | 7 | | | 2 |
| Stricture Urethra (internal urethrotomy) | 3 | 2 | | 1 | | |
| Undescended Testes | 1 | 1 | | | | |

| Disease | Total number operated | Cured | Relieved | Discharged otherwise | Died | Remaining |
|-------------------------------------|-----------------------|-------|----------|----------------------|------|-----------|
| Hydrocele (eversion of the sac) | 36 | 36 | | | | |
| Hydrocele (excision of part of sac) | 24 | 24 | | | | |
| Hæmatocele | 5 | 5 | | | | |
| Elephantoid Scrotum | 6 | 5 | 1 | | | |
| Hepatic Abscess | 4 | 2 | 2 | | | |
| Suppurative Hydatid of the Liver | 1 | 1 | | | | |
| Biliary Calculi | 1 | 1 | | | | |
| Renal Calculi | 1 | 1 | | | | |
| Vesical Calculi | 2 | 1 | 1 | | | |
| Hernia— | | | | | | |
| Strangulated Inguinal | 6 | 5 | | | | 1 |
| Obstructed Inguinal | 1 | 1 | | | | |
| Reducible Inguinal | 33 | 32 | | 1 | | |
| Ventral Hernia | 3 | 3 | | | | |
| Gastro Enterostomy | 12 | 4 | 4 | 1 | 3 | |
| Colotomy | 1 | 1 | | | | |
| Appendix (Removal of)— | | | | | | |
| (a) Quiescent | 10 | 10 | | | | |
| (b) Active | 2 | 1 | 1 | | | |
| Laparotomy for Peritonitis | 15 | 5 | 2 | 1 | 7 | |
| Perforation of Intestines | | | | | | |
| Sarcoma of the Iliac Colon, etc | | | | | | |

Lieutenant-Colonel P. C. Gabbett, I.M.S. (retired), who returned to duty on account of the war, reports on the work of the Third Surgeon's wards.—There were five gastro-enterostomies done, with one death, but the "end resects" are not known, 54 operations for hydrocele (26 by eversion, 20 by excision of sac), 39 operations for hernia (two deaths only), four for intestinal obstruction, two successful operations for perforated ulceration of stomach, etc., 12 operations for removal of appendix, seven fractures were wired and plated with good results, etc. There were 33 cases of surgical tuberculosis.

Major Niblock's report on the surgical work in his ward is published *in extenso* in another column P. 295 *supra*.

Correspondence.

PROMOTIONS IN THE I. M. S.

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Might I venture to bring before the notice of the authorities the delay in gazetetting the promotion of those I. M. S. officers whose commissions date January 1912. The matter is now more urgent as all Subalterns of the R. A. M. C., irrespective of service, were promoted to the rank of Captain on 20th March 1915.

In my present station I am in the position of being junior to a certain R. A. M. C. Captain, though, if my promotion was gazetted, I would be his senior both in rank and service. It is quite conceivable that this might cause pecuniary loss to certain I. M. S. officers in other stations, apart from the personal annoyance.

Indian Army Subalterns due for promotion in January 1915 were gazetted in February last. Why not the I. M. S.?

On Foreign Service,
1st June, 1915

V. M.

CATARACT STATISTICS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—With reference to Col Maynard's letter in your June number the facts he states are correct. I regret that by an oversight the mistake was made

AMRITSAR,
June, 1915

Yours truly,
H SMITH,
LT COL, I M S

QUININE IN MALARIA

To The Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In the last two parts of his "Studies in Malaria" Captain Stott gives the impression that there are only two ways of giving quinine, namely, oral and hypodermic. His paper further implies that the risk of tetanus from hypodermic injection of this drug is so slight that, if proper precautions are taken, the results justify the risk. He omits to insist that there are two other excellent ways of administering quinine, namely rectally and intravenously. At the London School of Tropical Medicine, where the facilities for the study of malaria from all parts of the world are very great, the reliance placed on the rectal administration of quinine is very remarkable. I believe that I am correct in saying that there the physicians rely entirely, and successfully, on the rectal administration of quinine, and that the hypodermic administration is wholly or almost wholly unknown. If that be granted, then it is unjustifiable to give a hypodermic injection of quinine except in very rare circumstances, and after the gravest consideration. If you have two equally efficient methods, one with the danger however slight, of a horrible death, and the other without, there is not even a question of choice.

Sulphate of quinine is soluble in water to the extent only of 1 in 800, but is very soluble in acid. Its efficiency as a preventive and curative agent in malaria is largely dependent on the presence of a normally acid, gastric juice to dissolve it. If the gastric juice be not acid, and I believe from clinical observations that this is not infrequently the case in malaria, the salt is not dissolved. If the juice be acid, or the sulphate be given in solution, then the possibility of rapid absorption only exists for so long as the quinine is in an acid medium. Such sulphate of quinine as is not absorbed from the acid medium is precipitated as soon as the medium becomes alkaline, and is thereafter very slowly absorbed. I have seen certain cases of malaria stubbornly resisting the influence of sulphate of quinine, usually taken in the form of tablets, becoming cured at once on the administration of the bihydrochloride, which is soluble in less than its weight of water. It is essential to remember that to administer sulphate of quinine by the mouth is not the same thing as securing its absorption into the blood, and that in certain cases you might as well expect to cure your patient by your self complacently dropping the drug direct into his bedpan, as by letting him deposit it there himself, unaltered and largely unabsorbed, after a devious and tiresome passage through his alimentary canal. Possibly, I think probably, these considerations throw a light on Captain Stott's conclusions. At least there is to my mind no doubt that the failure of sulphate of quinine to cure certain bad cases of malaria is going to bring a measure of discredit on the Government anti malarial campaign, and to provide a handle for those whose real opposition to it is due to the fact that it is taking away their means of livelihood.

DARJELLING,
June, 1915

Yours, etc,
CLAYTON LANE, M D,
MAJOR, I M S

TETANUS AND USE OF QUININE HYPODERMICALLY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I notice an article by Capt Stott, I M S, in your issue for June on quinine injections in malaria in which he brushes aside Colonel Semple's work on the relation of tetanus following quinine injections to one another. It would be interesting to know how he explained the fact (a) that tetanus does occasionally follow quinine injections and that we never hear of following morphia injections, (b) why it is that most of the tetanus which follows surgical operations follows hernia operations in which there is an anaerobic stump left.

The implication that we who have seen tetanus follow surgical operations and that those who have seen it follow quinine injections are careless will bring conviction to no one. Colonel Semple is a very careful worker, and he has proved his case for those who are prepared to follow where reason

leads. His facts persuade many of us, when we have to administer quinine hypodermically in bad cases of fever, that we should at the same time administer a dose of tetanus antitoxine.

AMRITSAR,
June, 1915

HENRY SMITH,
LIEUT COL, I M S

WHAT IS A "GRIEVOUS HURT"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—With reference to the query of Sub Asst Surgeon Pala Ram in your journal of May, 1915, I write for his information that loosening of a tooth or teeth, which is a dislocation of the tooth or teeth, is a grievous hurt. The following kinds of hurt are classed as grievous according to Section 320, Indian Penal Code

- 1 Emasculation
- 2 Permanent privation of the sight of either eye
- 3 Permanent privation of the hearing of either ear
- 4 Privation of any member or joint
- 5 Destruction or permanent impairing of the powers of any members or joint
- 6 Permanent disfigurement of the head or face
- 7 Fracture or dislocation of a bone or tooth
- 8 Any hurt which endangers life or which causes the sufferer to be during the space of twenty days, in severe bodily pain, or unable to follow his ordinary pursuits

Mr Pala Ram's query falls under clause 7 of the section quoted above

Yours, etc,
O R CHETTY,
SENIOR SUB ASST SURGN,
Basseln, Burma

THERAPEUTIC NOTICES

MESSRS W WATSON AND SONS, LTD, of 196, St Portland St, W London, have issued a bundle of useful pamphlets on their well known X ray Equipments for war service, which can be recommended to all needing such apparatus.

THE GLAXO Co, 945, Kings Road, London, N W, have issued a pamphlet on the value of Glaxo in Summer Diarrhoea. This diet is used in many kinds of flux also. The Calcutta Agency is at P O Box 341, and in Bombay P O Box 366.

AN IMPROVED ADAPTABLE SPLINT

As originally designed the "Tabloid" Splint Outfit provided a straight splint of any length required, but, later, the addition of angle pieces made an "L" splint readily available. Attachments have now been devised to make the outfit also adaptable for fractures of the wrist and ankle.

For Colles' fracture a cylindrical attachment fits on to the straight arm splint. Over this attachment the fingers may be bound comfortably, after the manner of Carr's splint, but the "Tabloid" splint has the advantage of being adaptable to either hand.

For use in Pott's fracture, a rectangular attachment is now added to enable the leg splint to be secured to the foot, making shifting almost impossible. This foot piece may also be joined to one of the straight narrow sections to provide a small "L" splint suitable for a child's arm (Messrs Burroughs, Wellcome and Co).

Messrs Burroughs, Wellcome and Co send us an interesting pamphlet on photography in five lessons which is well worth the attention of amateurs. The B & W photographic tabloids are well known and approved of.

We may add, says *The Prescriber*, that Messrs Burroughs Wellcome and Co are now turning out salvarsan and neosalvarsan (under the names of "Kharsivan" and "Neo Kharsivan") of a standard identical with the German products—a fact which Teutonic writers agreed was quite beyond the powers of British manufacturers. This firm is also manufacturing a number of alkaloids, hitherto obtained almost entirely from Germany, including atropine, cocaine, emetine, eserine, homatropine, hydrastine, hyoscyne, pilocarpine, and sparteine, and their salts.

Medical men may therefore take heart of grace. So long as they avoid in their prescriptions those German trade named products against which we have already warned them there is little fear of their patients suffering from a dearth of good and useful drugs.

Messrs Parke, Davis and Co, Bombay, send us an Abridged Index of Therapeutical Preparations which will be found very useful to medical men.

Service Notes.

WAR AND SERVICE NOTES

In the House of Commons, on 9th June, Mr Asquith made a statement of the total number of casualties up to 31st May in the British expeditionary forces in France and Flanders, and in the Mediterranean. The figures include the Territorial force and the Indian and Colonial contingents, but do not include the Navy or the Naval division, or the forces serving in the Persian Gulf, East Africa, South Africa, the Cameroons, etc. Presumably prisoners are included among the missing. The figures were as follow —

| | Officers | Other ranks | Total |
|--------------|---------------|----------------|----------------|
| Killed | 3,327 | 47,015 | 50,342 |
| Wounded | 6,498 | 147,482 | 153,980 |
| Missing | 1,130 | 52,617 | 53,747 |
| TOTAL | 10,955 | 247,114 | 258,069 |

On 15th June Mr Asquith stated the number of casualties which had occurred, up to the same date, in the Royal Navy, Royal Marines, and Royal Naval Division, as follows —

| | Officers | Other ranks | Total |
|--------------|------------|---------------|---------------|
| Killed | 549 | 7,696 | 8,245 |
| Wounded | 181 | 2,262 | 2,443 |
| Missing | 74 | 2,785 | 2,859 |
| TOTAL | 804 | 12,743 | 13,547 |

DURING the seven days, 11th to 17th June inclusive the number of casualties reported among officers was 563, which may be tabulated as follows —

| | Killed | Died | Wounded | Missing | Prisoners | Interned | Total. |
|-----------------------------------|--------|------|---------|---------|-----------|----------|--------|
| <i>Dardanelles</i> | | | | | | | |
| Naval officers | 39 | 41 | 7 | | | | 87 |
| Military officers, British | 34 | 66 | 24 | | | | 124 |
| Military officers, British troops | 1 | 2 | | | | | 3 |
| Military officers, Indian | | 1 | | | | | 1 |
| Military officers, New Zealanders | 33 | 42 | 1 | | | | 76 |
| Military officers, Australians | 9 | 27 | | | | | 36 |
| | | | | | | | 327 |
| <i>Flanders</i> | | | | | | | |
| British officers | 54 | 1 | 121 | 2 | 19 | 2 | 199 |
| British officers, Indian troops | 1 | | 6 | | | | 7 |
| Indian officers | 1 | | 17 | | | | 18 |
| | | | | | | | 224 |
| <i>West Africa, Naval</i> | 2 | 2 | 1 | | | | 5 |
| <i>Cameroons, Military</i> | | 1 | | | | | 1 |
| <i>Persian Gulf, Military</i> | 1 | | 4 | | | | 5 |
| <i>Egypt, Military</i> | 1 | | | | | | 1 |
| | 176 | 4 | 328 | 34 | 19 | 2 | 563 |

Out of the total number of 563, there were 327 reported from the Dardanelles, 224 from Flanders, and 12 from other parts of war. One of the killed, and five of the wounded, in Flanders, were casualties due to gas poisoning. Eleven medical officers were included in the total two died of wounds and nine wounded—they were as follows—in the Dardanelles, Surgeon T L G Stewart, R.N., died of wounds, and wounded Surgeons R Creasy and W Bradbury, R.N., Lt Colonel W R Pearless, New Zealand Medical Corps, Major T Holt, R.A.M.C. (T.F.), and Lieutenant G Bailey, R.A.M.C. (T.F.) in Flanders, Lieutenant D G Watson, R.A.M.C., died of wounds, and wounded, Major G H L Hammetton, R.A.M.C. (T.F.) Captain H L Gregory, R.A.M.C. (T.F.), and Captain R M Dickson, R.A.M.C. and in the Persian Gulf, Captain R Knowles, I.M.S., wounded.

MAJOR GEORGE HERBERT LEONARD HAMMERTON, R.A.M.C. (T.F.), took the Scottish triple qualification in 1900, and after serving as house surgeon at the General Infirmary, Dewsbury, entered into practice in that town, where he was Medical Superintendent of the Dewsbury Joint Hospitals Board. He attained the rank of Major in the Yorkshire Mounted Brigade Field Ambulance on 20th August 1914.

CAPTAIN ROBERT MILNE DICKSON, R.A.M.C., was educated at Dundee and St Andrew's University, where he took the M.B. and Ch.B. in 1906. After filling the posts of house physician and senior house surgeon of the Dundee Royal Infirmary, he entered the army as Lieutenant on 4th February 1908, and became Captain on 4th August 1911.

SURGEON THOMAS LOUIS GRENET STEWART, R.N., was educated at Glasgow, where he took the M.B. and Ch.B. in 1911, after serving as junior house surgeon of the Borough Hospital, Birkenhead, and assistant resident medical officer of the Brownlow Infirmary, Liverpool, he took a temporary commission in the Navy at the beginning of the War.

SURGEON ROFF CREASY, R.N., was educated at Guy's, and took the M.R.C.S. and L.R.C.P., London, in 1885. He was in practice at Windlesham, Surrey, where he was medical officer of No. 4 district of the Chertsey Union, and public vaccinator of Windlesham, till he joined the Navy for the War.

LIEUTENANT DAVID GALLOWAY WATSON, R.A.M.C., was educated at Edinburgh, where he took the M.B. and Ch.B. in 1913. He received a temporary commission on 10th August 1914. He was reported as wounded in the casualty list of 26th May, and as having died of wounds in that of 14th June.

CAPTAIN HENRY LONSDALE GREGORY, R.A.M.C. (T.F.), was educated at Cambridge, London hospital, and Leipzig, and took the B.A. at Cambridge in 1894, the M.A., M.B., and B.C. in 1898, and the M.R.C.S. and L.R.C.P., London, in 1897. After acting as house surgeon and senior dresser to out-patients at the London Hospital, and house physician to the Hospital for Consumption, Brompton, he went into practice at Highgate. He joined the 7th battalion of the Middlesex regiment as Lieutenant on 24th February 1906, becoming Captain on 24th August 1909.

CAPTAIN ROBERT KNOWLES, I.M.S., was born on 30th October 1883, and educated at Cambridge and St Mary's. After taking the B.A., Cambridge, in 1905, and the M.R.C.S. and L.R.C.P., London, in 1907, he entered the I.M.S. as Lieutenant on 1st February 1908, becoming Captain on 1st February 1911. He joined the 110th Mahratta Light Infantry as medical officer on 30th August 1914.

SURGEON WILLIAM BRADBURY, R.N., took the M.B., Ch.B., and B.A.O. of the Royal University, Ireland, in 1908, and joined the Navy as surgeon on 6th November 1908. The *Navy List* of January last shows him as medical officer of the torpedo gunboat *Circe*.

LIEUTENANT COLONEL WALTER ROBERT PEARLESS, of the New Zealand Medical Corps, was educated at Barts, and took the M.R.C.S. in 1876, so must now be fully sixty years old. He was in practice at Wakefield, Nelson, New Zealand.

MAJOR THOMAS HOLT, R.A.M.C. (T.F.), took the M.B. and Ch.M. at Aberdeen in 1890, the M.D. in 1906, and the D.P.H. of the Edinburgh and Glasgow Colleges in 1896. He is medical officer of health, and medical officer to the Education authority, in the county borough of Burnley. He joined the medical department of the auxiliary forces on 7th April 1894, becoming Major on 12th May 1908, and was attached to the 6th Lancashire Fusiliers.

LIEUTENANT GILBERT BAILEY, R.A.M.C. (T.F.), took the M.R.C.S. and L.R.C.P. London, in 1913. He joined the first East Lancashire Field Ambulance, with headquarters at Manchester, as Lieutenant, on 8th January 1915.

During the eight days, 3rd to 10th June, inclusive, the casualties officially reported among British officers amounted to no less than 693, of which 107 took place in the Dardanelles, and 572 in Flanders. They may be tabulated as follows —

| | Killed | Died | Wounded | Missing | Prisoners | Total |
|---------------------------------|------------|----------|------------|-----------|-----------|------------|
| <i>Dardanelles</i> | | | | | | |
| Naval officers | 5 | | 11 | | | 16 |
| Officers, British troops | 20 | | 35 | 1 | | 56 |
| Australians | 10 | | 16 | 1 | | 27 |
| British officers, Indian troops | 1 | | 2 | | | 3 |
| Indian officers | 1 | | 4 | | | 5 |
| <i>Flanders</i> | | | | | | |
| Officers, British troops | 116 | 1 | 269 | 41 | 26 | 453 |
| Canadians | 29 | | 74 | 2 | | 105 |
| British officers, Indian troops | 5 | | 3 | | | 8 |
| Indian officers | 1 | | 5 | | | 6 |
| <i>South Africa</i> | 3 | | 8 | | | 11 |
| <i>Cameroons</i> | 1 | | 2 | | | 3 |
| TOTAL | 192 | 1 | 429 | 45 | 26 | 693 |

Four killed, and 35 wounded in Flanders, included in the above, were due to gas poisoning. Eight medical officers figured in the list as wounded, three in the Dardanelles,

temporary Surgeons J R Kay Mount, R.N.V.R., and D D Pimrock, R.N., and Captain J J Black, Australian Medical Corps, and five in Flanders. Captain J T McGlashan, and Lieutenants J T Heffernan, G D Maclean, J J Ward, and R O'Kelly.

LIEUTENANT GUY DALZELL MACLEAN, R.A.M.C., was educated at Glasgow, where he took the M.B. and Ch.B. in 1912. He received a temporary commission in the R.A.M.C. on 10th September 1914.

LIEUTENANT JOHN THOMAS HEFFERNAN, R.A.M.C., was educated at the Catholic University, Dublin, and qualified as L.R.C.S.I. and L.R.C.P.I. in 1910. He was medical officer of the Carney dispensary, district, Cashegaron, county Sligo, before the war broke out, and took a temporary commission in the R.A.M.C. on 8th March 1915.

LIEUTENANT JOHN SAMUEL WARD, R.A.M.C. (T.F.), was educated at Sheffield, and qualified as L.M.S.S.A. in 1907. After acting as assistant house surgeon of the West Kent General Hospital, Maidstone, and resident assistant medical officer of the Union Hospital, Friar Vale, Sheffield, he went into practice at Rochdale. He took a commission as Lieutenant in the first Home Counties Field Ambulance, with headquarters at Maidstone, on 12th December 1914.

TEMPORARY SURGEON JOHN RICHARD KAY MOUNT, R.N.V.R., was educated at Bristol, where he took the M.B. and Ch.B. in 1912. He was assistant pathologist of British Royal Infirmary, and demonstrator of pathology in British University. He was wounded while serving with a field ambulance in the Dardanelles.

TEMPORARY SURGEON DUDLEY DENHAM PINNOCK, R.N., attached to the Armoured Car division, was educated at Melbourne, Middlesex, and Barts. He took the M.B. and B.S. at Melbourne in 1908, the M.R.C.S. and L.R.C.P. London in 1911, and the F.R.C.S. England in 1913. He had been senior house surgeon and obstetric house surgeon at the Women's Hospital, Melbourne, and house physician of Ballarat Hospital. When the war began he was resident medical officer of St Andrew's Hospital, Dollie Hill, Cricklewood, and surgeon registrar of the London Temperance Hospital.

CAPTAIN KEITH BUCHANAN MACGLASHAN, R.A.M.C., was educated at Edinburgh, where he took the M.B. and Ch.B. in 1910, and the M.D. in 1912, also the F.R.C.S. Edinburgh in 1913, and the D.P.H. of the Edinburgh and Glasgow Colleges in the same year. After serving as resident physician of the Royal Hospital for Sick Children, Edinburgh, and resident surgeon of the Royal Maternity Hospital, Edinburgh, and of the Royal Infirmary, Bradford, he went into practice at Leeds, where he was anæsthetist to the Leeds hospital for women and children.

LIEUTENANT RICHARD O'KELLY, R.A.M.C., took the L.A.H. Dublin in 1914, joined the Special Reserve of the R.A.M.C. on 26th January 1914, and was called out on 28th August 1914.

CAPTAIN J J BLACK, of the Australian Army Medical Corps, qualified in Australia. His name does not appear in the *Medical Register*.

LIEUTENANT COLONEL MONTAGUE STOKES EYRE, Madras Medical Service, retired, died at Bath on 29th May 1915. He was educated at Edinburgh University, where he took the M.B. and Ch.B. in 1876, and entered the I.M.S. as surgeon on 30th September 1876, becoming Surgeon Major on 30th September 1888, and Surgeon Lt. Colonel on 30th September 1896. He retired on 7th April 1907. Though his thirty years service were spent almost wholly in military employ, the Army List assigns him no war service. He was the second son of the late Edmund Walter Eyre, Inspector General of Hospitals, Madras.

MAJOR ARTHUR TIEGELLES PRIDHAM, Indian Medical Service, died suddenly on 6th June 1915. He was born on 4th August 1877, the second son of the late Arthur E Pridham, of Plymouth, educated at Barts, and took the M.R.C.S. and L.R.C.P. London in 1899, and the M.B. London in 1901, in which year he was Brackenbury medical scholar. After filling the posts of house physician at Barts and at the North East Hospital for Children, he entered the I.M.S. as Lieutenant on 1st September 1902, becoming Captain on 1st September 1905, and Major on 1st September 1914. On 16th November 1907 he was appointed medical officer of the 5th Gurkha Rifles, but latterly had been acting in civil employ in Burma, as Superintendent of Rangoon Central Jail, and since 6th October 1913 had been on sick leave. He served on the North East Frontier of India, in the Abor campaign of 1911-12 and gained the frontier medal with a clasp.

On 28th May fifty-eight casualties were reported, in Flanders 14 killed, 23 wounded, and three missing, in the Dardanelles three naval officers killed, one military officer killed, and nine wounded, and in South Africa two killed. Two medical officers were among the wounded, Major H de Legh, R.A.M.C., in Flanders, and Captain H B Cunningham in the Dardanelles.

MAJOR HARRY LEIGH DE LECH, R.A.M.C. (T.F.), was educated at Barts, took the M.R.C.S. and L.R.C.P. London in 1889, and the M.D. Durham in 1907, and is in practice at Redon, Yorkshire, where he was medical officer of the Post Office, and of the Convalescent Home for Men and Women at Cortham. He entered the 4th battalion Yorkshire Regiment, to which he was attached, as Lieutenant, on 11th November 1896, and became Major on 11th November 1908.

CAPTAIN HERBERT HUGH BLAIR CUNNINGHAM, R.A.M.C. (T.F.), was educated at St Mary's, and took the M.R.C.S. and L.R.C.P. London in 1901, the M.D. Brussels in 1904, and the F.R.C.S.I. in 1905. After gaining the ophthalmic scholarship at St Mary's he served as chief clinical assistant at the Royal London Ophthalmic Hospital and as ophthalmic house surgeon at St Mary's, and then settled at Belfast, where he is ophthalmic surgeon to the Ulster Hospital, and assistant surgeon to the Belfast Ophthalmic Hospital, as well as examiner in ophthalmology and otology to the Royal College of Surgeons, Ireland. He joined the Reserve of Officers as Lieutenant on 9th May 1903, and the West Lancashire Engineers on 5th August 1912. He served in South Africa in 1900-02, in the operations in the Orange River Colony, the Transvaal, and Cape Colony, and has the Queen's medal with three clasps, and the King's medal with two clasps.

DURING the five days, 29th May to 2nd June inclusive, the number of casualties reported was no less than 444, as follows—

| | Killed | Died | Wounded | Missing | Total |
|---------------------------------|------------|----------|------------|-----------|------------|
| <i>Dardanelles</i> | | | | | |
| Naval officers | 8 | | 12 | 1 | 21 |
| Military officers | 2 | | 8 | | 10 |
| British officers, Indian troops | 2 | | 6 | | 8 |
| Indian officers | | | 4 | | 4 |
| Australian officers | 13 | 1 | 52 | 7 | 73 |
| <i>Flanders</i> | | | | | |
| British officers | 100 | | 192 | 3 | 295 |
| British Indian troops | 14 | | 12 | 1 | 27 |
| Persian Gulf, Indian officers | | | 1 | | 1 |
| South Africa | 1 | | 2 | 2 | 5 |
| TOTAL | 140 | 1 | 289 | 11 | 444 |

AMONG the casualties to British officers in Flanders, five of the killed and 16 of the wounded were reported as due to poisoning by gas. The above list included eight medical officers, Captain G C Methison, 5th Australian Medical Corps, died of wounds, Captain L W Jeffries, 4th Australian Field Ambulance wounded, and Surgeon E G Schlesinger, R.N. wounded the above three in the Dardanelles, and five wounded in Flanders, Captains L C Hayes, W E F Tinley, J Murdoch, E U Russell, and Lieutenant J P Mitchell, all of the R.A.M.C. Captain Hayes was also reported to be suffering from gas poisoning.

CAPTAIN GORDON OLUNES MCKAY MATHISON was educated at Melbourne, where he graduated as M.B. in 1905, B.S. in 1906 and M.D. in 1911, with first class honours in chemistry, physiology, medicine, and surgery. He had held the Beit Memorial Research Fellowship, and had filled the posts of house surgeon and house physician, Melbourne Hospital, medical tutor at Ormond College, Melbourne University, and Sharpey scholar and assistant in physiology at University College.

SURGEON EDWARD GUSTAVE SCHLESINGER, R.N., Howe battalion, was educated at Guy's, and took the B.Sc. London, with first class honours, in 1903 the M.B. with honours and in the B.S. in 1911 also the M.R.C.S. and L.R.C.P. London 1911. He had filled the posts of chemical assistant in the Orthopedic department, house surgeon, clinical assistant, and out patient officer, at Guy's, and had edited the *Guy's Hospital Gazette*. He was in practice at Regent's Park, London, N.W. till the war broke out when he joined the Navy as a temporary surgeon.

CAPTAIN WILLIAM EDWIN PILKINGTON TINLEY, R.A.M.C. (T.F.), was educated at Newcastle and at St Thomas'. He took the M.B. and B.S. Durham in 1894 the M.D. 1898, and the M.R.C.S. and L.R.C.P. London in 1895. After serving as senior obstetric house physician and assistant teacher of practical surgery and pathology at St Thomas', he became medical officer of health of Whitby Urban district council, and was consulting surgeon to the Seaside Home Whitby. He took a commission as medical officer and Lieutenant in the 2nd Northumbrian Brigade R.F.A. on 1st April 1907, and became Captain on 1st October 1910.

CAPTAIN LIONEL CHATTOCK HALES, R A M C, was educated at Birmingham, where he took the M B and Ch B in 1907, also the M R C S and L R C P London in 1907, and the D P H Cambridge in 1912. After serving as house physician, resident medical officer, and resident pathologist, at the General Hospital, Birmingham, he entered the R A M C as Lieutenant on 31st July 1909, and became Captain on 31st January 1913.

CAPTAIN EDWARD UNIAKE RUSSEL, R A M C, was educated at King's College Hospital, took the M R C S and L R C P London in 1912, and entered the army as Lieutenant on 26th July 1912, becoming Captain on 30th March 1915.

CAPTAIN J. MURDOCH, R A M C (T F), is shown in the casualty list as a medical officer, as above, but in the *Army List* appears as a combatant officer in the 7th battalion, Argyll and Sutherland Highlanders. He became Lieutenant on 14th March 1909, Captain on 8th July 1912.

LIEUTENANT JOHN PHIMISTER MITCHELL, R A M C, was educated at Aberdeen, where he took the M B and Ch B in 1907, the M D in 1911. He had filled the posts of house physician of the Seaman's Hospital (Dreadnought) at Greenwich, resident medical officer of the Royal Waterloo Hospital for Women and Children in Waterloo Road, London, and clinical assistant at the Central London Eye, Nose and Throat Hospital. He joined the special reserve of the R A M C on 11th September 1914.

DURING the three days, 27th to 29th May, the British Navy lost three ships the battleships *Triumph*, 11,985 tons, and *Majestic*, 14,900 tons, torpedoed in the Dardanelles on the 25th and 27th May, and the *Princess Irene*, an armed merchantman, one of the Canadian Pacific line, blown up in Sheerness harbour, on 27th May. In the two first cases, fortunately, the loss of life was small, three officers and 53 men on the *Triumph*, and 49 men in the *Majestic*, a small proportion of the complement of a battleship. In the *Princess Irene*, on the other hand, the loss of life was great, the whole ship's complement of 130 with only four exceptions (three men on shore at the time and one picked up alive), and 76 dockyard men who were working on board at the time. According to the last *Navy List*, that for January, the medical officers on the *Triumph* were Staff Surgeon G M Eastment, Surgeons David G Arthur and A J Patterson, and on the *Majestic* Fleet Surgeon Edwin Pollitt, Surgeon Richard F Quinton, and temporary Surgeon Arnold Viney. The *Princess Irene* carried only one medical officer, Surgeon Frederick Whitby Quicke, who perished in the explosion. He was educated at St Mary's, took the M R C S and L R C P London in 1908, and entered the Navy as Surgeon on 6th November 1908. The January *Navy List* shows him as serving on H M S *Hannibal*.

SURGEON GENERAL GEORGE WILLIAM ROBERTSON HAY, Bombay Medical Service (retired) died in Edinburgh on 26th May 1915. He was educated at Edinburgh University, took the L R C S Edinburgh in 1867, and the M D Edinburgh in 1868, and entered the I M S as Assistant Surgeon on 1st April 1868. He became Surgeon on 1st July 1873, Surgeon Major on 1st April 1880, Brigade Surgeon Lt Colonel on 3rd December 1892, Surgeon Colonel on 16th August 1897, and Surgeon General on 1st April 1900, retiring on 27th December 1904. The last appointment he held in India was that of P M O of the Madras Command, an appointment abolished some ten years ago. The *Army List* assigns him on war service.

LIEUTENANT COLONEL ROBERT HENRY ELLIOT, of the Madras Medical Service, retired on 19th April 1915. He was born on 13th August 1864, and educated at Barts, where he took the Preliminary Service Examination in 1884, and the Bentley Surgical Prize in 1885. He qualified as M R C S and L R C P London in 1889 and took the M A London with honours in 1890, the B S, also with honours, in 1891, and the F R C S England in 1892. Subsequently he became D Sc Edinburgh in 1904 and M D London in 1905. He also took the Cambridge D P H in 1892. Entering the I M S as Surgeon Lieutenant on 30th January 1892, he became Surgeon Captain on 30th January 1895, Major on 30th January 1904, and Lieut Colonel on 30th January 1912. Previous to his retirement he had been on sick leave. Most of his service was spent in civil employment in Madras, where he had for many years been Superintendent of the Ophthalmic Hospital and Lecturer on Ophthalmic Surgery in Madras Medical College. On retirement, he has started practice in London in his specialty. He is the author of *Sclero Corneal trephining in the Operative treatment of Glaucoma* 1913 collaborator in *The Ophthalmic Yearbook* for 1913 and has written many other papers on his own special subject. He served on the North East Frontier of India, in the Chin Hills campaign of 1892-93, and received the frontier medal with clasps.

ON 14th May, 57 casualties were reported, of naval officers in the Dardanelles three killed, one died and two wounded, in Flanders twelve killed, 43 wounded, and one missing. Three medical officers were in this list, Lieutenant H W Goodden killed, and Lieutenants H P W White and E F Edmunds, wounded, while a fourth, Lieutenant J A Macmahon, died of wounds.

LIEUTENANT HENRY WYNDHAM GOODDEN, R A M C, was born in 1883, the elder son of Wyndham C Goodden, of 23, Warrington Crescent, London, W. He was educated at Clifton College and at the Bristol Medical School where he qualified as M B and Ch B in 1912, also taking the M R C S and L R C P London in the same year, and afterwards studied at Paris and Vienna. After serving as house surgeon and senior resident medical officer of Bristol Royal Infirmary, he took a temporary commission in the R A M C on 20th August 1914. He was killed near Ypres on 9th May, while serving with the 2nd battalion of the Royal Irish Regiment. He had been previously wounded in the battle of the Aisne.

LIEUTENANT HORACE POWELL WHITE, a New Zealander, after taking the M B and Ch B at Edinburgh in 1914, he took a temporary commission in the R A M C on 15th November 1914. He was attached to the Royal Field Artillery.

LIEUTENANT EDGAR FLETCHER EDMUNDS was educated at Sheffield Medical School, and took the M B and B S at Durham in 1904. After acting as house surgeon of Chester General Hospital, and assistant house surgeon at Lotherham Hospital, he went into practice at Port Ellesmere, Cheshire, where he was medical officer of the Post Office, and got a temporary commission on 16th November 1914.

LIEUTENANT JOHN AQUILA MACMAHON died on 12th May in London, of wounds received at Ypres, aged 25. He was the only son of the late Aquila Macmahon, of Hilltop House, Harth, Ireland. He took the M B and B Ch at Trinity College, Dublin, in 1913.

ON the 15th May a very long list of first 201 casualties was issued. In the Dardanelles three naval officers were killed, nine wounded, and two missing, officers of British troops, three killed and 13 wounded, British officers of Indian troops, two wounded, and Indian officers three wounded. In Flanders 35 officers of British troops were killed, 91 wounded, and six missing, British officers of Indian troops two killed and five wounded, Indian officers, one killed and 22 wounded. One Indian officer was also reported killed in East Africa.

ON the 17th May the list of casualties for the past two days amounted to no less than 385. In the Dardanelles two naval officers were reported wounded, seven military officers killed, and 31 wounded. From Flanders 92 were reported killed, 226 wounded, and 27 missing. The killed included Brigadier General A W Lowry Cole, and Lieutenant H W Goodden, R A M C, whose name had previously appeared in the *Times* obituary. Among the wounded was Captain E A Sutton, R A M C.

CAPTAIN EVELYN ALEXANDER SUTTON took the M R C S and L R C P London in 1914, and entered as Lieutenant on 31st July 1914, being the last man on the list of regular officers of the R A M C. He was promoted to Captain on 30th March 1915.

ANOTHER long list of casualties was published on 18th May. From the Dardanelles three naval officers were reported as killed, and three as wounded, and thirty officers of the Australian contingent wounded. In Flanders 42 officers were returned as killed, 42 wounded, eight missing, and nine as missing and believed killed, total 137. One officer of the R A M C, Lieut E C Linton, was wounded, and the name of another, Lieut M Peru, appeared as killed in the *Times* obituary.

LIEUTENANT MONTAGUE PERU, R A M C, was the second son of the late Alfred Peru, F R C S, and of Miss Peru, of Botley Hants and was killed at Ypres on 9th May, aged 26. He was educated at Guy's, took the M R C S and L R C P London in 1912, and was serving as assistant medical officer of the Workhouse Infirmary, Portsmouth, when the war broke out. He joined the R A M C as a temporary Lieutenant on 16th August 1914.

LIEUTENANT EDWARD CLAUDE LINTON, R A M C, was educated at the London Hospital, took the M R C S and L R C P London in 1911, and served at that hospital as House Surgeon, and House physician. He entered the special reserve of the R A M C, as Lieutenant on 11th September 1914.

H M S "GOLIATH," Capt T L Shelford, an old battle ship, was torpedoed in the Dardanelles on the evening of 12th May, and sank, with the loss of over 500 lives. According to the last *Navy List* available, that of January, she carried three medical officers, Fleet Surgeon G A Waters, Surgeon Charles Hollton, and temporary Surgeon Charles Hamilton Blair Avarne. Only the name of Fleet Surgeon Waters is given on the list of missing.

FLEET SURGEON GEORGE ALEXANDER WATERS, R N, was educated at Queen's College, Galway, and took the M D and M Ch at the National University of Ireland in 1884. He attained the rank of Fleet Surgeon on 17th August 1903, and was posted to the *Goliath* on 1st August 1914.

THE casualty lists for the four days, 19th to 22nd May inclusive, gave no less than 647 names, which may be tabulated as follows—

| | Killed | Died | Wounded | Missing | Prisoners | Total |
|---------------------------------|--------|------|---------|---------|-----------|-------|
| <i>Dardanelles</i> | | | | | | |
| Naval | 1 | 2 | 4 | | | 7 |
| Military, British | 4 | | 21 | | | 25 |
| Military, Australian | 25 | | 100 | 5 | | 130 |
| Military, New Zealand | 2 | | 11 | 2 | | 15 |
| Military, Indian | | | 3 | | | 3 |
| <i>Flanders</i> | | | | | | |
| British officers | 125 | | 212 | 43 | 5 | 385 |
| British officers, Indian troops | 12 | | 33 | | | 45 |
| Indians | 12 | | 25 | | | 37 |
| TOTAL | 181 | 2 | 409 | 50 | 5 | 647 |

Four medical officers were reported as killed, Major J Woods, I M S, and Lieutenants M Peru, G H Lunan, and G M Chapman, R A M C, and nine as wounded, Captains J W B Bean and L W Jeffries, of the Australian contingent and Captain H F Pantou, R A M C in the Dardanelles, the others in Flanders, Major J S Y Rogers, R A M C (T F), Captain W Rogers, R A M C (T F), Captain E A P Brock, R A M C, and Lieutenants F H Sprague, J R Mariack, and P Cagney, R A M C. Captain S Field, R A M C, was reported as having died as a prisoner of war, and Lieutenant J A Stenhouse, R A M C, missing on 3rd May was reported to be a prisoner.

MAJOR JAMES WOODS, I M S, was reported as killed in action in Flanders, in the casualty list of 20th May. He was born on 22nd February 1877. Educated at Edinburgh, where he took the M B and Ch B in 1901, and entered the I M S as Lieutenant on 29th January 1902, becoming Captain on 29th January 1905, and Major on 29th January 1914. He served in the Mohmand campaign, on the N W Frontier, in 1906, was present in the actions at Malta, 24th April 1908, and Kargah, 24th May 1908, and gained the frontier medal with a clasp. Since 1905 he had been medical officer of the 53rd Sikhs, but previous to the war had been officiating in civil employ in the Punjab, and was serving with the 39th Garhwal Rifles at the time of his death.

LIEUTENANT GEORGE HAROLD LUNAN, R A M C, was killed near Ypres on 13th May, aged 23. He was the elder son of Mr George Lunan, pharmaceutical chemist, Edinburgh, was educated in that city at Stewart's College and at the University, and took the M B and B Ch in 1913. He got a temporary commission as Lieutenant on 11th September 1914, and had been attached to the 9th Lancers since October. On May 10th he was slightly wounded by a bullet which passed through his cap and bruised his head, but remained at duty, till he was killed three days later.

LIEUTENANT GEORGE MARTIN CHAPMAN, R A M C, was reported killed in action in the casualty list of 22nd May. He was educated at the Universities of Otago and Cambridge and at the London Hospital, took the B A of Cambridge and the M R C S and L R C P London in 1912, and joined the special reserve of the R A M C on 10th September 1914. He played in the Cambridge Rugby fifteen in 1907-08-09.

CAPTAIN STEPHEN FIELD, R A M C, died as a prisoner of war at Wittenberg, in Saxony, on 10th April. He was the

only surviving son of the late W G P Field, Aural Surgeon and Dean of St Mary's Hospital, and of Mrs Field, of Montmore, West End. He was educated at St Mary's, took the M R C S and L R C P, London, in 1906, and entered the army as Lieutenant on 28th January 1907, becoming Captain on 28th July 1910. Previous to the war he was serving in Jamaica. He was taken prisoner in the retreat from Mons and was reported as missing in the casualty list of 26th September 1914.

MAJOR JAMES SAMUEL YEAMAN ROGERS, R A M C (T F), Medical Officer of the 4th (City of Dundee) battalion of the Black Watch, was reported on 29th May as wounded. He was educated at Edinburgh, where he took the M B and C M in 1890, and was in practice at Dundee, where he had been house surgeon and house physician to the Dundee Royal Infirmary, and is now visiting physician of that hospital, as well as lecturer on the diseases of children in University College, Dundee. He entered the auxiliary forces as Surgeon Lieutenant on 20th March 1895, and became Major on 5th December 1907.

CAPTAIN WILLIAM ROGERS, R A M C (T F), of the 7th, (cyclist) battalion of the Welsh regiment, was reported on the same day, 22nd May, in the list of wounded. He was educated at Edinburgh, where he took the M B and B Ch in 1900, the M D in 1911. After qualifying, he served as a Civil Surgeon in the South African war, and afterwards as district surgeon of Fraserburg, Cape Colony, up to 1905. After returning to England he settled in practice at Barry Dock, where he was surgeon to the Barry Accident and Surgical Hospital, and medical officer of the Post Office. He was serving with the 5th battalion, Cheshire regiment, when wounded.

CAPTAIN JOHN WILLOUGHBY BUTLER BEAN, of the 3rd Australian Infantry was educated at Cambridge and at Barts, and took the M R C S and L R C P London in 1907, the B A, M B, and B C Cantab in 1909. After serving as house physician of the Sermon's Hospital, Greenwich, he went into practice at Sydney, and accompanied the Australian contingent to Egypt and the Dardanelles.

CAPTAIN L W JEFFRIES, of the Australian Field Ambulance, probably took his qualification in Australia as his name is not in the *Medical Register* for 1915.

CAPTAIN HENRY FORBES PANTON, R A M C, was reported on the 19th May as wounded in the Dardanelles. He was educated at Edinburgh, where he took the M B and Ch B in 1910, and after serving as house surgeon and house physician of the General Hospital, Birmingham, entered the R A M C as Lieutenant on 26th February 1912, and was promoted to Captain on 30th March 1915.

CAPTAIN EDWARD ALBERT BROCK, R A M C, was reported wounded on 22nd May. He was educated at Barts, took the M R C S and L R C P London in 1913, entered the R A M C on 31st July 1914, and was promoted to Captain on 30th March 1915. He was attached to the 2nd Royal Irish Fusiliers.

LIEUTENANT FRANCIS HENRY SPRAGUE, R A M C (T F), was shown as wounded in the list of 20th May. He was educated at St Mary's, took the M R C S and L R C P London in 1899, and, after filling the post of house surgeon of the Royal Cornwall Infirmary, Truro, went into practice at Gloucester, where he was physician to the Children's Hospital, and honorary medical officer of the St Lucy's Home and the Church of England Waifs and Strays. He was medical officer of the 5th battalion, Gloucester regiment, which he joined on 30th September 1914.

LIEUTENANT JOHN RICHARDSON MARRACK, R A M C (T F), was reported wounded in the list of 21st May. He took the M B and B C at Cambridge in 1912, and received a temporary commission in the R A M C on 11th September 1914. He was attached to the 1st battalion of the Monmouthshire regiment.

LIEUTENANT PATRICK CAGNEY, R A M C, was reported as wounded in the list of 22nd May. He took the M B and B Ch at the National University of Ireland in 1913, and got a temporary commission in the R A M C on 16th September 1914. He had previously been reported as wounded in the list of 10th May, only twelve days earlier.

ON Monday, 24th May, another very long list of casualties was published, containing 318 names. Many of the Australian officers shown as killed, however, had previously been returned as missing. Among the Australians killed was their commander, Major General W T Bridges, who died of wounds, he was gazetted K C B after his death. In the Dardanelles one Naval officer was returned as killed, and of

the Australian contingent 60 officers killed, 1 died 20 wounded, and 2 missing. In Flanders 61 British officers were returned as killed, 99 wounded, 16 suffering from gas poisoning, and 9 missing total 185, and of the Canadian contingent 7 killed, 1 died 33 wounded, 7 gas poisoned, and 1 missing, total 49. In these lists the names of no less than eight medical officers were included. Two died of wounds, Captain G. C. Glidden, of the Canadians, and Lieutenant G. A. Macmahon, R.A.M.C., whose death had previously been reported in the *Times* obituary (see above). Five were wounded, Major G. S. Motherwill and Captain F. C. Bells of the Canadians, Captain H. S. Hollis, R.A.M.C. (T.F.), and Lieutenants W. A. Stewart and W. Kelsy Fry, of the R.A.M.C., and one, Lieutenant P. W. James, R.A.M.C., was returned as suffering from gas poisoning.

CAPTAIN G. C. GLIDDEN, of the Canadian Army Medical Corps, was attached to the 10th battalion, West Canada regiment. His name does not appear in the *Medical Register* for 1915, so presumably his qualification was Canadian. The same remark applies to Major G. S. Motherwill and Captain F. C. Bell, of the Canadians.

LIEUTENANT WILLIAM KELSEY FRY, R.A.M.C., was educated at Guy's, where he was assistant dental house surgeon when the war began. He took the M.R.C.S. and L.R.C.P. London, in 1912, and received a temporary commission as Lieutenant on 7th August 1914.

LIEUTENANT WILLIAM ALLAN STEWART, R.A.M.C., was a Tasmanian. He got the M.R.C.S. and L.R.C.P. London in 1913, and received a temporary commission on 13th August 1914.

CAPTAIN HERBERT STANLEY HOLLIS, R.A.M.C. (T.F.), was educated at St. Mary's, and took the M.R.C.S. and L.R.C.P. London in 1905. He was M.B. and B.S. London, with honours, in 1908, after serving as resident obstetric officer and house surgeon at St. Mary's, he went into practice at Hore, Brighton. He was attached to the second Home Counties Field Ambulance, whose headquarters are at Ashford, in Kent.

LIEUTENANT PHILIP WILLIAM JAMES, R.A.M.C., was educated at Exeter, and took the M.R.C.S. and L.R.C.P. London in 1897, the M.B. Durham in 1903, and the M.D. in 1906. After acting as house surgeon at the London Lock Hospital, chemical assistant at the Great Ormond Street Children's Hospital, and clinical assistant at the Samaritan Hospital for Women and Children, and also serving in the South African war, he went into practice at Thornton Heath, Surrey, and when the war began took a temporary commission on 10th August 1914.

ON 25th May 176 casualties were reported, all from Flanders, viz., 53 killed, 113 wounded, one suffering from gas poisoning, and nine missing. The officer returned as "gassed" was Lieutenant A. C. Perry, R.A.M.C.

LIEUTENANT ALAN UECIL PERRY, R.A.M.C., took the M.R.C.S. and L.R.C.P. London in 1914. He joined the special reserve as Lieutenant on 6th August 1914, and was attached to the Sherwood Foresters.

THE number of casualties reported on 26th and 27th May was somewhat smaller, in the Dardanelles, naval, 2 killed, 4 wounded, and 3 prisoners, military, 2 killed and 2 wounded, in Flanders, 52 killed, 81 wounded, 12 missing, and 2 prisoners, total 160. Two medical officers, Lieutenants D. G. Watson and W. T. Quinlan, were reported as wounded.

LIEUTENANT DAVID GALLOWAY WATSON, R.A.M.C., took the M.B. and B.Ch., at Edinburgh in 1913, and had recently received a temporary commission.

LIEUTENANT WILLIAM THOMAS QUINLAN, R.A.M.C., was educated at Cardiff and at the London Hospital, and took the M.R.C.S. and L.R.C.P. London in 1909. After filling the posts of casualty officer of British Royal Infirmary, house physician of British General Hospital and house surgeon of the Wolverhampton and Staffordshire General Hospital, he became senior house surgeon of the Royal Sussex County Hospital, Brighton, and held that appointment till the war began, when he joined the special reserve of the R.A.M.C. as Lieutenant on 3rd September 1914.

SURGEON GENERAL ARTHUR JAMES PAYNE, Bengal Medical Service, retired, died at 76, Onslow Gardens, South Kensington, on 21st May 1915. He was born on 21st October 1838, the son of Quartermaster Payne, of the Grenadier Guards, educated at King's College, London, and took the M.R.C.S. in 1847, the M.D. London, as well as the B.A. London in 1848. He entered the I.M.S. as Assistant Surgeon on 20th December 1848, nominated by W. Wigram, Esq., 20th December 1868, and Deputy Surgeon General on 13th September 1879. In 1881 he was appointed A.M.O. of Lower Bengal, with local rank of Surgeon General, and retired on 1st February 1885. After serving for a short time in the Artillery, he was posted to civil employ in the North

West, now the United Provinces, in 1850, where he served as Civil Surgeon of Fatehgarh and Gorakhpur. In 1852 he reverted to military duty, and on 27th December 1855 was appointed Garrison Surgeon of Fort William. On 31st October 1856 he entered civil employ in Bengal as second Assistant Surgeon of the Presidency European General Hospital, Calcutta, and in Calcutta he spent the remaining 28 years of his service. In 1863 he was appointed Superintendent of the Calcutta Lunatic Asylums, and held that post till his promotion, holding also, from time to time, various extra charges, the medical charge of the Bodyguard, of the Mysore Princes the Calcutta Native Militia, and the Presidency Jail. Though he was in India at the time of the Mutiny, the *Army List* assigns him no war service. At the time of his death, he was third in seniority of the retired officers of the Bengal Medical Service, after Surgeon Major Hinton and MacTier.

SURGEON MAJOR GEORGE AUGUSTUS CONES, Bengal Medical Service, retired, died on 12th March 1915. He was born on 17th December 1850, educated at St. George's, took the M.R.C.S. and L.R.C.P. London in 1877, and entered the I.M.S. as Surgeon on 30th March 1878. He was on half pay on account of ill health from 1st May 1885 to 12th January 1886, became Surgeon-Major on 30th March 1890, and retired on 21st October 1892. He spent his whole service in military employ, and served in Afghanistan in 1878-80, receiving the medal, and in Burma in 1889, when he got the medal with a clasp.

TEMPORARY LIEUTENANT T. H. BISHOP is promoted to be temporary Captain, I.M.S. Captain Bishop was before the war medical officer in charge of the great Sara Bridge over the Ganges.

THE Distinguished Service Medal has been granted by the King Emperor to the following officers—

Medical Services, 1st Class, Senior Sub Assistant Surgeon Gaurie Shankar (112th Indian Field Ambulance)

No 4009 Naik Madhawa (112th Indian Field Ambulance)

No 1171, 3rd Class, Sub Assistant Surgeon Zafar Husain (129th Indian Field Ambulance)

No 7017 Naik Khushali, Army Bearers Corps, No 19, British Field Ambulance

No 1118 Naik Surjoo, Army Bearers Corps, No 20, British Field Ambulance

MAJOR C. A. HARRISON, M.B., has been put on the temporary half pay list with effect from 7th June 1915. Major Harrison was District Medical Officer, Madras, and went on medical leave out of India on 7th June 1914.

LIEUTENANT COLONEL S. W. T. BUIST, I.M.S., Civil Surgeon, Ambala, got a month's leave in June July.

THE undermentioned officers of the retired list are re-employed in India during the period of the war with effect from the dates specified—

Lieutenant Colonel William Elmsley Scott Moncrieff, M.D., F.R.C.S.E.,—12th November 1914

Lieutenant Colonel Pulteney Charles Gabbett,—14th November 1914

Major Thomas Edgar Watson, M.B.—26th November 1914

Major Charles Henry Leet Palk, M.B., F.R.C.S.E.,—8th December 1914

Lieutenant Colonel Patrick Percy Kilkelly, M.B.,—1st January 1915

Major Charles Thomson, M.B.,—19th December 1914

Lieutenant Colonel Henry Thomson, M.D.,—23rd January 1915

Lieutenant Colonel Clarence Forbes Fearnside, M.B.,—28th January 1915

Lieutenant Colonel George Ernest Fooks,—29th January 1915

Lieutenant-Colonel Kanta Prasad, M.B.,—29th January 1915

Lieutenant-Colonel Alexander Vass Anderson, M.B.,—29th January 1915

Major Narendra Prasanna Sinha,—30th January 1915

Surgeon Captain Gilbert Capel Hall,—30th January 1915

Lieutenant-Colonel Robert Shore, M.D.,—5th February 1915

Lieutenant-Colonel Damodar Pushtum Warliker,—6th February 1915

Colonel Herbert St. Clare Carruthers,—7th February 1915

Lieutenant-Colonel John Charles Lamont, M.B.,—10th February 1915

Lieutenant Colonel Charles Norman Bensley,—19th February 1915

THE services of Lieutenant Colonel P St C More, M D, I M S, are replaced temporarily at the disposal of His Excellency the Commander in Chief in India, with effect from the afternoon of the 25th April 1915

THE services of Major G H Stewart, M B, I M S, are replaced temporarily at the disposal of His Excellency the Commander in Chief in India, with effect from the 25th April 1915

CAPTAIN A ROBERTSON, I S M D, is appointed to be Superintendent, Central Prison Agra, as a temporary measure, with effect from the 29th March 1915

LIEUTENANT P B MILLS, I S M D, Civil Surgeon, Fatehgarh, was in visiting medical charge of Etah from the 20th March to 11th May 1915

MAJOR R D SAIGOL, F R C S E, I M S, is appointed to hold charge of the Medical Store Depot, Rangoon, in addition to his own duties, with effect from the forenoon of the 17th May 1915

IN consequence of mobilization the services of Lieutenant H W V Cox, I S M D, Civil Surgeon, Gurdaspur are replaced temporarily at the disposal of the Director General, Indian Medical Service, with effect from the afternoon of the 12th May 1915

THE services of Lieutenant Colonel H B Melville, M B, I M S, were replaced at the disposal of the Government of the United Provinces, with effect from the 1st March 1915

HIS EXCELLENCY the Governor in Council is pleased to appoint Lieutenant Colonel Melvaunji Pestonji Khareghat, I M S (retired) on the close of the Matheran season, to act as Presidency Surgeon, Second District, with attached duties, in addition to his own duties, *vice* Major E F G Tucker, M B, B S, M R C P (London), I M S, pending further orders

SIR BENJAMIN FRANKLIN, K C I E, says *The Hospital*, who is taking duty at the Red Cross headquarters for Sir Frederic Treves, who has gone to the Mediterranean, is an old I M S officer. A University College Hospital student, he qualified M R C S (Eng) in 1867, and entering the Indian Service, obtained the rank of Surgeon General before retiring full of honours, including appointment of Honorary Physician to His Majesty

THE undermentioned to be temporary Lieutenants, subject to His Majesty's approval, with effect from the dates specified—

Shripurji Hoimasji Modi, F R C S, 4th January 1915, Vinayak Balwant Golhale, 4th January 1915, Ali Azhar Hasanally Fyze, 4th January 1915, Jehangir Edalji Spencer, 4th January 1915, Rustom Keshasp Dadachanji, 4th January 1915, Shrinivas Vithal Kutane 4th January 1915, Framji Sorabji Master, 4th January 1915, Sorab Dinsha Billimoria, 4th January 1915, Kowsha Khaishedi Mehta, M B, 4th January 1915, J Nasserwanji Hoimasji Choksy M B, 4th January 1915, Bailey Glenice Valerie Dias, 4th January 1915, Ramro Nwayer Ajinkya, M B, 12th February 1915, Upendra Nath Banerjee, 8th May 1915, Phanindia Krishna Gupta, 8th May 1915, Nilatan Chatterjee, 8th May 1915, Pramatha Nath Ghosh, 8th May 1915, Alexander Dias 10th May 1915, Vinayak Naray Agte, M B, 11th May 1915, Sarat Chandra Mitia, M B, 13th May 1915, Cuthbert Edward Rohan Norman 14th May 1915, Ram Chandra Malhotra, M B 15th May 1915, Homi Shrivex Dastur, 17th May 1915, Rustom Burjorji Spencer, M B, 17th May 1915, Devendra Bharadwaja, 18th May 1915, Balajipetah Shesha Chhram 18th May 1915, Framroze Manackji Vajifda, 18th May 1915, Sumirendia Lal Mitia, M B, 20th May 1915, Henry Aung Khin, M B, 21st May 1915, Sidhai Chintamon Jog 21st May 1915, Parojsha Meewanjee Antir, M B 25th May 1915, Mansseckjee Meewanjee Cowasjee 25th May 1915, Brij Bushan Kapila, M B, 4th June 1915

SURGEON GENERAL ROBERT W S LYONS, M D, Indian Medical Service, is appointed an Honorary Physician to the King, *vice* Brigade, Surgeon Lieutenant Colonel (Honorary Colonel) D D Cunningham, C I E, M D, deceased, dated 31st December 1914

MAJOR J MASSON, M B, I M S, was appointed Civil Surgeon, Chapra, on 31d June 1915

ASST SURGEON LALA MATHURA DAS I was posted as Civil Surgeon of Shapur with effect from 29th May

MAJOR P F CHAPMAN, M B, C M, I M S, Civil Surgeon, Pachmaihi, is reposted to Nagpur

THE Chief Commissioner is pleased to appoint Major P F Chapman, M B, C M, I M S, Civil Surgeon, Nagpur, as Superintendent of the Lunatic Asylum, Nagpur

THE Chief Commissioner is also pleased to appoint Major P F Chapman, M B, C M, I M S, Civil Surgeon, Nagpur, as Superintendent of the Medical School, Nagpur

ON relief by Major P F Chapman, M B, C M, I M S, Honorary Captain J Robertson, I S M D, Civil Surgeon, Nagpur, is reposted to Akola

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Honorary Captain J Robertson, I S M D, Civil Surgeon Akola, to the executive and medical charge of the Akola District Jail

ON relief by Honorary Captain J Robertson, I S M D, Major A O C Watson, M B, C M, F R C S, R A M C (retired list), temporary Civil Surgeon, Akola, is transferred in the same capacity to Hoshangabad

CIVIL ASSISTANT SURGEON K R MENON, L M & S (Mad), is appointed to officiate as Civil Surgeon, Kyanke, with effect from the 2nd June 1915, in place of M W D Jones granted leave

SURGEON GENERAL TOM GRAINGER, C B, becomes Honorary Surgeon to the King, *vice* Surgeon General Harris, C S I, retired

COLONEL BAMBER on attaining the age of 60 retired from the service. He entered the service on 30th September 1878 and at the moment of his retirement he is in total length of service the senior man in the I M S. For many years he was Sanitary Commissioner of the Punjab, for his work in connection with the Delhi Coronation Darbar he was (inadequately) rewarded by a M V O, on July 1910 he became Inspector General of Civil Hospitals, Punjab

On Colonel Bamber's retirement the Hon'ble Colonel G W P Denny, C I E, remains the senior officer in length of service and the only remaining representative of the batches of the "seventies"

COLONEL HENDLEY succeeds Col Bamber as I G, C H, Punjab

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BOOKS, REPORTS, &c, RECEIVED —

Encyclopedia of a Medical Butterworth & Co, Calcutta
Botany—Livingstone & Co
Major Lelean's Sanitation in War J & A Churchill
Prosser White's Occupational Affections of the Skin H K Lewis
J B Murphy's Clinics (Feb 1915) W B Saunders & Co
Ransome's Campaign against Consumption
Phillips—Amoebiasis and Dysenteries H K Lewis
Bahr's Sprue in Ceylon, 7s 6d Cambridge University Press
The Medical Annual 1915 Wright & Co
Thresh's Simple Water Analysis (8th Edn) 2s 6d J & B Churchill

LETTERS, COMMUNICATIONS &c, RECEIVED FROM —

Sir B Seton I M S, Brighton Lt-Col D G Crawford I M S Brighton Sir L Rogers, I M S Calcutta, Lt Col H Smith, I M S Amritsar Capt Green Armytage, I M S, France, Major Knapp I M S, Rangoon, Major Brodrick I M S, Secunderabad, Dr Gorr, Bombay, Major Overbeck Wright Quetta, Dr Pugh, Travancore

Original Articles.

SOME EXPERIENCES IN THE WAR

By HUGH WATTS, M.D.,

CAPT., I.M.S.

(1) THE VOYAGE

AT last we have reached our journey's end, a voyage that though tedious has given one some memories that will not quickly fade—the embarkation at Bombay and troopships leaving Aden with their escort for an unknown destination.

It will be long too before one forgets the sight of fifty transports steaming in two long lines, especially the sight at night when one seemed to be looking down a brilliantly lighted lane that stretched away into the far distance as far as the eye could see.

Striking too, was the scene at Port Said when we moved slowly past French transports and battleships, all on board crowding to the side to cheer us, crews and soldiers, officers and men alike, wildly enthusiastic. We have experienced the thrill of seeing an unknown torpedo boat making straight for us when our escort had gone and the sensation of relief when we could make out the tricolour.

It's a fine bright day but, oh, so cold, as we steam past the familiar shores of the bay into the docks that seem as busy as ever.

It doesn't take long to find out where we have to go, but to get there is not quite such an easy matter. The tired officer we interview, who leans against the panelled side of the ship where the staff carry on their arduous labours, is evidently not far from exhaustion, for in spite of his outwardly robust appearance he can barely raise his voice above a whisper and directs us with a languid wave of the hand. One can only hope that the elaborate lunch we see being prepared will pull him round.

We find that our camp is many miles from here right across the town but that there is a hotel close to it where we can be billeted. The next step is transport, and after several more journeys to and fro, I manage to secure an order for a homely cart and its two mules. The "diab," however, with the unreliability of his race bolts directly my back is turned and I only just catch him before he vanishes. At last all our possessions are loaded on and we start off on our six-mile tramp through the crowded streets.

The docks are as noisy as ever and the keen breath of the mistral sweeps round corners bringing in its train all the dust and odd refuse of the streets and trying hard to hurl our caps into the sea.

Our modest kit attracts an undue amount of attention as the cart goes clattering over the

cobbles with us in close attendance, and we are not sorry to leave the crowded Cannebière for the comparative quiet of the Prado.

It is getting dark now and my companion is footsore and we both feel rather forlorn, so it is with great relief we turn in through a gateway and come to a stop in front of the hotel.

As "Monsieur le Propriétaire" speaks excellent English, one does not have to search in the recesses of one's mind for scanty scraps of French, but can make one's wants speedily understood.

It is not a cheerful place that hotel, in winter anyhow, for the living rooms are bare and floored with stone that chills one to the marrow, while the stoves in which they try to burn dust and ashes are nearly always out.

My bedroom is like a vault, and only cheerful at night when the gas lamp outside is lit.

After dinner we make a special effort to get our upstairs stove really hot and sit round it, dubbing boots, and discussing the advantages of various articles of kit.

But the crowd speedily diminishes, soon only a few are left, and before long news filters down that so and so who crossed in our ship is dead.

It is interesting to sit awhile in a café in the evening and watch the crowd, for they are an interesting lot, civilian and soldier alike amongst the former the fair sex predominates, and they are by no means devoid of charm, as many are decidedly attractive and most of them well turned out from top to toe.

One sees numerous French officers, some in the old uniform, others in the new horizon blue, which, although it is neat and attractive, does not strike one as being a very serviceable colour.

Some of them are plainly old campaigners, but many seem rather self-conscious and unaccustomed to their fine clothes.

They all carry swords, even the doctors, and salute each other with great punctiliousness.

There are scores of "pious-pious" of all ages and descriptions, men from the front wounded and war worn, their clothes faded and stained, young men just called to the colours, and middle-aged men, fathers of families, clad in nugget corduroys who make themselves useful carrying out guards and patrols.

Of them all it's hard to beat the Chasseurs d'Afrique and the Chasseurs Alpins. The former are sturdy well-set-up men mostly French colonists, in soft fez-like caps, red breeches, and cummerbunds, the latter in dark blue, with a Tam o'Shanter kind of headgear, are of a type that makes one think their sobriquet of the "Diablen bleu" may be well justified.

Besides these there are Dragoons in their heavy brass helmets carrying gigantic sabres, artillery men with revolvers slung at their backs, Zouaves with jelly bag caps, neat little coats and

voluminous knickerbockers, Spahis in their flowing picturesque robes, Senegalese that take one's thoughts back to Massa Johnstone and his corner men, and occasionally a French interpreter in khaki or a Belgian officer distinguished by his tasseled cap once we saw some quaint people in knobbed hats and were told they were soldiers from the French Colony of Tonkin.

The British Army is not so well represented, but still there are a good few types we have a few local "brass hats" and some senior Naval officers, but the N C O and the young Subaltern seem to predominate, and I fancy the French are often puzzled to discriminate between them, some of the latter, more specially the *Risala*, are tremendous "knuts" with beautifully tied puggarees a *kuta* that looks like a frockcoat in length of skirts, and the tightest of Jodhpur breeches and immaculate boots and gaiters. There are very few Tommies about, but all sorts of Indians, fighting men and Babus, Brahmin, and sweeper alike. Most unconcerned of all is the Drabi driving his little two-wheeled cart with the two mules leaning against each other, and the whole affair wandering from side to side of the road to the despair of the trams and general traffic.

Yes it's a fascinating occupation to sit and watch the medley of East and West, and behind it the masts of the ships in the Vieux Port stand out black against the sunset.

(2) A GENERAL HOSPITAL

We have brought up a scratch lot of cooks and *dhobis*, ward orderlies and sweepers, who attract as much interest as though they were Rajputs of ancient lineage. We have passed through Paris without losing any *en route*, and it is grey dawn on a chill January morning when we reach Boulogne the station seems quite deserted, but on going outside we see a large cheerful fire, and a closer investigation reveals that it is part of a Red Cross post, and soon some of the officials have very kindly bestowed themselves and furnished us with hot cocoa and bread and jam.

After this welcome repast all Sahibs and Bhangis alike crouch round the fire and wait for the day.

It takes some little time even when we have got our orders to secure the necessary transport, but we finally get three large ambulances which accommodate the whole of our party and their baggage.

The driver of my particular vehicle is swathed and muffled in so many wrappers that he resembles a bear.

He tells me he has come down from the front for a bit because he thought his nerve was beginning to fail. What he was like before I don't know, but I do know that we seemed to go round most of the corners on two wheels.

It is some twelve miles to the little sea-side resort of Hadelot and when one does arrive one's first impressions are not very cheering it consists of a few score villas thrown down amidst the sand dunes on the seashore they are practically all empty now.

No smoke rises from their chimneys, the windows are shuttered, and though they are all neat and gaily painted yet they seem forlorn and deserted. The sand strewn roads are empty and deserted, a dark mist heavy with moisture hides the sea. The hospital we find is in the local hotel and its annexes, while the medical officers and other European *personnel* are living in a few of the villas and pay a by-no-means nominal rent for the same.

We pass through the double doors into a spacious tile-floored hall well warmed with a stove, which makes an excellent receiving room.

On the same floor is the operating theatre, far better equipped than many I have seen in India, and the X-Ray room, for the better working of which the expert in charge has commandeered some of the fittings from the local cinema.

An orderly officer's room—one of the warmest places in Northern France when the stove is in full blast—and a preparation room with two high power sterilizers are close at hand.

There are also a fine large ward, a compact little dispensary, convenient offices, sinks, etc., on the same level, while upstairs are more wards, a surgery on each floor, latrines, and store rooms.

The wards, with their iron beds neatly arranged in rows covered with bright *rezars*, and blue dressing gowns and pyjamas for the patients look very clean and comfortable, while bedside lockers help to keep them neat.

Outside are good latrines, convenient places for washing and drying clothes, and a really excellent kitchen, where the stout Doctor Babu and his energetic assistants can produce a fabulous number of *chapattis* in a given time.

It is altogether a revelation to one whose professional lines have been cast in places where, struggle and strive as one may, the best possible is a compromise between efficiency and cheapness with a strong bias in the latter direction.

At present things are very quiet, one might almost say dull, because patients are few and far between.

It isn't always dreary and depressing here some days the sun shines so clear and blue one can almost see the English coast and if the wind is cold and keen it furnishes the motive power for the aeroplanes one sees skimming over the sands.

One seems very remote here from the war, a torpedo that has missed its mark and has been washed ashore, the death of two French aviators drowned within sight of land, the low grumble of distant artillery that can be heard on the golf

links when the wind is in the right quarter, are all the evidence we have apart from our patients. The amount of work to be done is not excessive, and one can get a round of golf occasionally, using the golf clubs that used to belong to the professional killed with his regiment, the Argyll and Sutherlands, at the beginning of the war.

We have snug quarters at a little café when Madame with the aid of our servants concocts appetising dishes.

All the same it is impossible to settle down in this quiet remoteness, impossible not to feel that the biggest war in the history of mankind has more for one than a life of monotonous comfort and ease.

(3) ON THE WAY TO THE FRONT

Slowly jerkily the long reinforcement train moves off.

It is a nightly occurrence, but all the same the French porters wave their caps and shout "bon voyage," while the busy workers in the Red Cross Canteen cease their labours for the moment and wave us good-bye, the train showing its appreciation by stentorian cheers.

Though one is by no means crowded, still four in a carriage does not leave too much room for comfortable slumber, but after a supper of cold meat and excellent Normandy cider we adapt ourselves as best we may and are soon fast asleep.

It is four in the morning when a more prolonged halt than usual wakes us up permanently, and looking out we find we are at Abbeville. The sight of hot water suggests tea, and I and my *vis à vis*, a volunteer from Chili, are soon enjoying a refreshing cup. Two energetic Tommies, who are changing here, seize the opportunity to have a shave and wash up "en plein air."

After half an hour or so off we go again through the peaceful countryside, lovely in the first flush of early summer.

Red-tiled farms, with white walls covered with roses, standing in the midst of orchards where the apple blossom still shows pink against the fresh foliage, lush green meadows yellow with buttercups where the red-coated cattle graze swampy patches of marsh and bog, aslant which lie the shadows of poplar and willow, patches of open water where the dabchick sails in and out of the tall reeds, fields of waving corn, woods glorious in their first fresh greenery, gardens with moss-encrusted walls, ancient churches whose tiled or slated roofs are stained by lichen, so quiet, so peaceful, that it comes as a shock to see a sentry with fixed bayonet guarding a bridge or a squadron of French cavalry manoeuvring in the fields.

But now the country is changing again, it is becoming flat and monotonous save for the

heaps of mine refuse, the houses are meaner, the churches more pretentious but less beautiful. At last we pull into railhead, a town not very far from the German lines, who show their appreciation of the fact by sending in a few shells every day. This is our first experience of shell fire, and as we don't realize it is the German guns that are firing till it is all over.

Another tedious crawl, more shunting and our journey is finished. All that remains to be done is to unload our *personnel* and equipment, get down the motor lorries, and take the road for headquarters, which we are told is in the little village with the old church just across the canal.

(4) A CONFERENCE

We pass down the quiet empty street, our boots raising a clatter on the cobbles, till we come to the large gate that stands open with a Sikh sentry on guard.

We pass in under the arch and turn aside up a few steps into a large quiet room.

There are pictures on the walls and carpets on the floor, but most of the furniture is pushed into one corner of the room and its place is taken by a long bare table on it are plans and papers, while maps are fastened to the walls.

The staff are hard at work by the aid of flaring acetylene lamps which throw a brilliant light.

The General enters, grey-haired and slight, he greets us courteously and seats himself near the fire place.

He tells us what he wants done in quiet and level tones, there is nothing to disturb the calm within except the entrance of an orderly or the buzz of the telephone, outside in the hush of the darkening evening grumbles the sullen mutter of the guns.

(5) TO THE TRENCHES

We have left the busy haunts of men miles back in the quiet little Flanders town, waggons rattle over the cobbles of the market place, lorries stand packed in the quiet streets, British soldiers throng the pavements and cluster round the pumps.

We have come through quiet lanes, past flower, surrounded farmsteads where our eastern soldiery seem curiously at home, past horse and mule lines, past the orchards where the big guns lie hidden and send forth their messages of destruction.

The little group of houses at the cross roads is sorely battered, the road pitted by shells, and yet the guard lounge at their ease in the estaminet, the sentry watches us unperturbed.

Signs of ruin and destruction become more and more evident, here is the shell of what was once a trim tidy villa, now it stands roofless with gaping holes in its walls, then surface pitted by bullets.

There is barbed wire in the garden, the windows are filled with sand-bags, part of the surrounding wall has been blown bodily away and the iron railings are left suspended in the air.

Just opposite is a tree from which a bursting shell has rent a large branch as thick as your thigh, not long ago, for its leaves are still unwithered.

A little further on are the burnt-out ruins of a farm, and a large shell has torn a yawning pit in the field at the side and spattered the road with mud.

Alongside are old dug-outs with the grass thick on top, and near by are a group of graves "to an unknown British soldier," "to a French civilian."

Here and there are scattered empty tins, cartridges, accoutrements, rusty bayonets, bits of broken rifles, fragments of shells, every now and then the breeze is tainted with a horrible odour of corruption. As we pass down this *Via Dolorosa*, the whistle of bullets passing far overhead becomes more distinct and one hears more often the "plop" as a bullet strikes a tree or wall—see there away on the left is a white cloud, shrapnel bursting over the trenches.

One can now see ahead, running at right angles, a row of mournful shattered stumps of trees, a line of pitiful ruins, once happy homes but now mere battered shells where death is never far away even now there is a flash and a loud report, and a black cloud of smoke and dust rises in the air to show where a shell has fallen.

It is an inexpressibly mournful scene, ruin and destruction are met with every turn, around lie the quiet fields where the scarlet poppy grows, and yet there is the sense of some malign influence lying hidden close at hand.

We leave the road here and enter a ruined farm where there are Goorkhas under cover. A Red Cross shows this is a regimental aid post, no enviable position where the Hun artillery are active.

Here we enter a trench which winds towards the firing line, gradually getting deeper and deeper till one is protected most reassuringly.

We leave it a little further on and scurry across a bit of open to the dug-out where another M O has his aid post, a subterranean dwelling with a substantial roof. The latter is now rather damaged, for a shell burst close above it yesterday and not only is the corrugated iron sheet on top sorely battered, but one fragment has even gone right through into the room beneath.

A mouthful of red wine and then *en avant* along by a hedge, an abrupt turn at right angles through an orchard along the side of a sand-bag screen, across a little creek where one does not linger to admire the flowers on account of the sniper who watches the bridge. The air is now too fresh and at times a noisome stench

assails one and though the trench itself is clean one feels all sorts of abominations are not far away.

Well, Bond Street comes to its appointed end and just as well, for soon the Huns are busy plastering it with shrapnel to annoy chance pedestrians.

We pass the supports and are soon in the firing trenches themselves. What is there to be seen? Not very much, and yet it gives one a creepy sensation at first to think the Huns are less than a hundred yards away, and that any moment they may send over a bomb, a grenade, or some other unpleasant surprise.

The possibilities in that direction are brought visibly home at a corner of the trench by a heap of loose earth, a few sand-bags blown from the parapet, and some ominous red stains.

Soon the massive solidity of the defences and the unassumed serenity of their occupants reassure one.

Though the trench actually hollowed out in the soil is only about three feet deep there is a substantial wall built up of sand-bags and earth which in the older trenches at any rate affords a very complete protection, in more recent ones or at certain spots that can be enfiladed by snipers it is as well to hurry past with lowered head.

On both sides at ground level are chambers hollowed out, and in these or on the firing platforms are men stretched out asleep, others are awake eating or chatting, smoking or acting as look-outs.

Some of the officers' dug-outs, such as La Maison Blanche, are tastefully decorated with pictures from the illustrated papers—the eternal feminine being the usual subject—and even masses of flowers! Loopholes are arranged with sand-bags or with an iron plate, and they are carefully concealed when not actually in use, for it is by no means impossible for German snipers less than a hundred yards away using telescopic sights to put a bullet through the aperture.

The trench level here is not far above the water line and in some places the men have scooped shallow holes whence they get the water to make their tea.

There are flies of all kinds, but the large blue bottles are the worst, behind the parapet only too thickly half-emptied tins of bully beef broken biscuits, and *débâtes* of all kinds, for Tommy is an untidy person, while in front not many yards away are corpses lying unburied though they are slowly being dealt with.

The dead and the living are not far apart here and often bodies lie below the floor of the trench itself sometimes even they are built up in the parapet.

Now the Huns are getting busy again and as tangible proofs of their hate are sending over

"pip squeaks" which hurry overhead to burst with a crash

Nothing strikes the newcomer up here more than the familiarity with death and wounds that men rapidly acquire under these conditions. A Sapper Subaltern comes into the dug-out brushing his clothes and announces with no more emotion that if he had been splashed by a passing vehicle that he has just been missed by "crump," or a Havildar impassively reports that the parados in his line has been blown in and a Naik killed, in addition to others wounded.

One is naturally inclined to think that one's own personal safety is a matter of some moment, but one soon comes to feel that here even a bloody and dramatic end would hardly move this blasé audience long used to such occurrences.

The cramped existence cooped up between two walls must be terribly irksome and the want of exercise most trying, no wonder men hail a perilous reconnaissance at night with something of glee.

It is rather fascinating to pick up a periscope and study the German trenches and the trees that are possibly lurking places for snipers.

When the time comes to return, one does so with the feeling that men who can face such an existence, with the prospect of a violent death always before them, from a sense of duty, deserve the very best assistance, the very best tools that the nation at home, can give them.

(6) AT AN AID POST

It is a glorious June day, and as it is Sunday afternoon a short rest from one's work seems permissible, so I cycle down the main road to Ration Corner where at the Cross Roads Inn a couple of M.O.'s have installed their aid posts.

It is a little roadside estaminet where, no doubt, in more peaceful times, carters pulled up their teams and went inside into the flagged bar to wash the dust out of their throats.

Now the busy time along the road is at night, when the ration parties come up with supplies for the men in the trenches, and ambulances are sent up to carry away the wounded and sick.

In the day time the road is not much used, a gunner officer or two going down to an observation post near the trenches, a bicycle orderly with a message, or a despatch rider on a motor bicycle, and a few small parties of men coming to and from the trenches. All along this part of the road the houses are deserted and forlorn, wrecked by shell fire and flared by bullets.

All the afternoon we lie on the grass in the orchard talking about past happenings and future possibilities. It is quiet and peaceful except for the whistle of a few shells passing high up overhead to burst further up the road where the Huns are wreaking their daily hate

against the "Doll's House" it was a trim tidy villa once, but now the roof has been smashed in, broken tiles litter the ground, and there are gaping holes in the walls, the garden and adjacent part of the road and field on the other side are pitted with deep craters. Literally dozens of shells have fallen here, and most of them quite harmlessly.

Occasionally one hears the "plop" of a bullet hitting a wall or a tree but not often, for we are over a mile from the trenches and there isn't much rifle fire in the daytime, though the night would tell a different tale.

A little further down the side road, under the shelter of a large clump of trees, is the advanced dressing station of a Field Ambulance in charge of an Assistant Surgeon, in a farm that has not been much knocked about. Full use has been made of its accommodation to provide as much shelter and comfort as is possible for the cases sent here by the various regiments. A Motor Ambulance is kept here so that urgent cases can be despatched at once, though the station is not evacuated till nightfall under ordinary conditions, as much traffic may attract the attention of the Huns, who will show it by vigorously shelling the road.

The faithful old Mahbub comes to tell us tea is ready, so we cross the road and enter the inn.

Tea is on the rickety table in the corner of the middle room (in the one at the back are the two beds). The floor is tiled, the windows protected by sand-bags. The tiled roof has been hit at least once, for fragments of shell have come through the ceiling, smashing the laths and plaster, and scoring deep marks in the walls.

There are flowers on the table and more than one kind of bottle on the shelf, a few books and papers, rickety chairs, and that is all. We have been discussing the problems of trench sanitation, and are quite absorbed in our subject when there is a loud whirr overhead and a heavy explosion outside.

We go out to look, and find a shell has landed in the garden about twenty yards away, but luckily has no damage.

A miss is as good as a mile, and so we resume our seats. Almost at once there is a similar noise and a violent crash on the front of the house, fragments of which coming flying through the door, and we are enveloped in a cloud of dust.

There are some shouts and a few groans, but when we get into the front room the house is quite empty, every one having cleared off. Another shell lands in the road just outside and this decides us to seek safer quarters, and we are outside the door in double quick time.

Before we cross the road we hear another on the way and as its rapidly accelerating pace

says "I'm just going to land," I take hasty cover crouched in a ditch overgrown with nettles. Another burst overhead, shrapnel as we can hear things falling all round, knocking twigs and bits of bark from the trees.

It's not pleasant to feel frankly and undisguisedly afraid, squatting there with little ripples of goose flesh running up and down one's spine is "demned unpleasant" and one feels very apologetic for taking up so much room. When this batch has arrived we make for the nearest dug-out to find it fully occupied by the Kahais and we make for another taking shelter behind a cottage on the way as the next lot come screaming along.

At last we have found a place of refuge and are safe from anything except a direct hit.

We crouch there listening to the whistle overhead and the crash like the slamming of a door as they land, sending up a cloud of dust and smoke while the fragments go singing away through the air landing perhaps several hundred yards away some come four at a time and they are particularly unpleasant.

I know now I don't like being under shell fire. I don't suppose anyone does.

It seems a long ten minutes and we give them a few minutes grace before we emerge to take stock of the damage.

The portly Doctor Babu tells us that though four men were wounded by the shell that hit the house, no one was seriously damaged and they all cleared off at once to the dressing station where their wounds have been attended to.

We find that the shell that caused the mischief struck the front of the house just where the wall between the passage and the front room joins it and made a large hole in the wall, as well as incidentally smashing a bicycle that happened to be there.

Four more had fallen quite close, but one of these was "blind," that is to say, did not explode.

It is rather appalling to note the havoc these things work on brick and stone and reflect what a poor resistance mere flesh and blood can offer.

Before I leave, S gets a chain and removes the sign from over the front door of the inn "La Galeté" is the name he had painted up, and inscribed underneath the legend "To-Night's the Night," but as he remarked the Huns took the jest too seriously!

REVIEW OF A YEAR'S MEDICOLEGAL WORK IN THE CALCUTTA MORGUE, 1914 (INCLUDING COMPARATIVE FIGURES FOR THE TRIENNIUM 1912-14)

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DURING the year 1914 348 cases were sent up by the police for post-mortem examination

as cases in which death appeared to occur under more or less suspicious circumstances

| 1912 | 1913 | 1914 |
|------|------|------|
| 252 | 281 | 348 |

(The average number per annum for the three years = 293 cases)

TABLE I

Distribution of cases according to months and quarters of the year —

| | 1912 | 1913 | 1914 | |
|-----------|------|------|------|---------------|
| January | 25 | 25 | 23 | = 91 = 1st qr |
| February | 20 | 18 | 31 | |
| March | 22 | 29 | 37 | |
| April | 22 | 16 | 27 | = 81 = 2nd qr |
| May | 22 | 11 | 32 | |
| June | 22 | 27 | 22 | |
| July | 9 | 21 | 20 | = 84 = 3rd qr |
| August | 19 | 22 | 34 | |
| September | 22 | 37 | 30 | |
| October | 22 | 29 | 27 | = 85 = 4th qr |
| November | 20 | 24 | 30 | |
| December | 17 | 22 | 28 | |
| TOTAL | 252 | 281 | 341 | |

TABLE II

Number of cases according to sex —

| | 1912 | 1913 | 1914 |
|---------|------|------|------|
| Males | 167 | 211 | 236 |
| Females | 85 | 70 | 112 |
| | 252 | 281 | 348 |

The proportion of male to female cases was 1.96 in 1912, 3.14 in 1913, 2.08 in 1914

TABLE III

Number of cases according to race —

| | 1912 | 1913 | 1914 |
|---------------------|------|------|------|
| Hindu | 180 | 184 | 215 |
| Mahomedan | 35 | 53 | 58 |
| European | 15 | 12 | 12 |
| Eurasian | 9 | 10 | 9 |
| Chinese | 2 | 4 | 5 |
| Indian Christian | 0 | 1 | 6 |
| Doubtful or unknown | 11 | 17 | 13 |
| TOTAL | 252 | 281 | 348 |

TABLE IV

Number of cases according to age-periods —

| | 1912 | 1913 | 1914 |
|---|------|------|------|
| At or about the time of birth | 10 | 13 | 12 |
| Up to and including 1 year of age | 0 | 3 | 3 |
| Above 1 and up to and including 5 years | 8 | 6 | 5 |
| " 5 | 10 | 5 | 12 |
| " 10 | 15 | 10 | 10 |
| " 15 | 20 | 23 | 33 |
| " 20 | 25 | 45 | 62 |
| " 25 | 30 | 28 | 63 |
| " 30 | 35 | 33 | 49 |
| " 35 | 40 | 16 | 23 |
| " 40 | 45 | 16 | 17 |
| " 45 | 50 | 17 | 22 |
| " 50 | 55 | 16 | 9 |
| " 55 | 60 | 14 | 15 |
| " 60 | 65 | 4 | 3 |
| " 65 | 70 | 5 | 6 |
| " 70 | 75 | 3 | 2 |
| " 75 | 80 | 2 | 2 |
| " 80 | 85 | 2 | 0 |
| " 85 | 90 | 0 | 0 |
| " 90 | 95 | 0 | 0 |
| " 95 | 100 | 1 | 0 |
| TOTAL | 252 | 281 | 348 |

As usual, the largest numbers of violent deaths are seen to occur among persons in the active period of adult life, between the ages of 15 and 60 years, and the largest numbers of all among those from 20 to 30 years of age. There is nothing particularly remarkable about this. It is just what one would expect but still it is interesting to note with what unfailing regularity this is the case.

TABLE V

Number of inquests held —

| | 1912 | 1913 | 1914 |
|-------------------------------------|------------|------------|------------|
| The City Coroner held an inquest in | 176 | 218 | 299 |
| No inquest was found necessary in | 76 | 63 | 49 |
| TOTAL | 252 | 281 | 348 |

TABLE VI

The viscera preserved at the time of *post-mortem* examination were disposed of as follows —

| | 1912 | 1913 | 1914 |
|---|------------|------------|------------|
| Sent to the Chemical Examiner to Government for analysis | 93 | 128 | 123 |
| Destroyed, after disposal of the case, under instructions from the Commissioner of Police | 159 | 153 | 225 |
| TOTAL | 252 | 281 | 348 |

TABLE VII

Result of the Chemical Examiner's analysis in the cases examined by him —

| | 1912 | 1913 | 1914 |
|---|-----------|------------|------------|
| Poison found (including cases in which alcohol only as differing from other poisons found) in | 55 | 81 | 83 |
| No poisons found in | 38 | 47 | 40 |
| TOTAL | 93 | 128 | 123 |

TABLE VIII

Analysis of the cases of poison found by the Chemical Examiner —

| | 1912 | 1913 | 1914 |
|-----------------------------|-----------|-----------|-----------|
| Opium | 31 | 38 | 36 |
| Opium and alcohol | 1 | 7 | 4 |
| Opium and arsenic | 1 | 0 | 1 |
| Opium and atropine | 2 | 1 | 0 |
| Alcohol only | 4 | 15 | 15 |
| Morphine | 4 | 1 | 0 |
| Morphine and alcohol | 0 | 0 | 2 |
| White arsenic | 3 | 3 | 7 |
| Yellow arsenic | 0 | 6 | 3 |
| Atropine | 2 | 0 | 0 |
| Stychnine | 2 | 0 | 1 |
| Aconite | 0 | 0 | 2 |
| Cocaine | 3 | 2 | 1 |
| Carbolic acid | 0 | 4 | 5 |
| Hydrocyanic acid | 0 | 0 | 1 |
| Cyanides (generally KCN) | 1 | 0 | 1 |
| Hydrochloric acid | 0 | 1 | 0 |
| Phosphorus | 1 | 0 | 0 |
| Nitric acid | 0 | 2 | 1 |
| Barium and alcohol | 0 | 1 | 0 |
| Chloral hydrate | 0 | 0 | 1 |
| Mercury and copper sulphate | 0 | 0 | 1 |
| Mercury | 0 | 0 | 1 |
| TOTAL | 55 | 81 | 83 |

It seems unnecessary and almost tedious to go on drawing attention, year after year, to the remarkable preponderance of opium cases over all other cases of poisoning taken together. The following figures for the past five years are calculated to show the percentage of the cases in which opium (not including opium in combination with other poisons) was discovered as the cause of death, in relation to all cases in which poison was detected —

| 1910 | 1911 | 1912 | 1913 | 1914 |
|------|------|------|------|------|
| 56.6 | 54.7 | 56.3 | 46.9 | 43.3 |

Attention has already been drawn, over and over again, to such figures as the above, to show the extraordinary popularity which opium enjoys as a means for committing suicide in Bengal, and I have already more than once urged the necessity for the introduction of adequate means to restrict the sale of this poisonous drug. I need hardly go over the same ground again. The matter remains urgent and the necessity as urgent, and until some measures are adopted, opium will doubtless continue to occupy the foremost place among the means used for self-destruction in at least, this part of the country.

On the other hand, I am prepared to allow, as the above figures themselves show and as my own experience bears out, that the percentage of opium deaths to all deaths by means of poisons, has gone down markedly during the past two years. *Pari passu*, there has been, since 1913, an increase in the deaths caused by alcohol, aconite, arsenic, and carbolic acid, and in the case of the last two, at any rate, the majority of the cases were of a suicidal nature. I am not prepared at this stage to suggest a reason for the decline in the use of opium and the increase in the use of some of these other poisonous agents as a means of suicide. In spite of this observation opium continues the favourite and, taking all into account, the indication points strongly to the desirability of introducing measures to further restrict the sale of poisons.

I use advisedly the word "further." The Poisons Act I, 1904, provides for the regulation of the possession and sale of all poisons in certain local areas. As will be observed in Table XII ("Analysis of suicidal violent deaths") various poisons (opium and its compounds and derivatives not included) together accounted for 37 deaths, with a percentage of 26.7 of all suicides by poison, and of these poisons several are covered by the terms of the Poisons Act I of 1904.

On the other hand, opium and its compounds and derivatives, during the period under review, accounted for no fewer than 102 deaths, or in other words, for 73.3 per cent of the suicides by poison. Opium, be it noted, is not included in the poisons schedules.

What may be the explanation for the omission, be it excise or any other reason I do not profess to know, but it is surely worthy of note that we have several poisons, no one of which is responsible for more than 7 per cent of deaths, and these, more or less, controlled. We have again one poison which alone is responsible for nearly 75 per cent of deaths and this poison is practically uncontrolled.

I must again urge what I have previously urged, *viz*, the framing of a regular "Sale of Poisons Act," whereby the State would do all that might lie in its power to restrict the procuring of poisonous substances, *including* opium and its derivatives and compounds. The incidence of crime, at any rate by such means may thus be effectually diminished.

While on the subject of poisons and with particular reference to their detection, I have on previous occasions pointed out how it frequently happens that a poison is discovered in the urine, when undetected in the viscera and stomach contents, or, for that matter, in the stomach washings. I am informed by the Chemical Examiner that Medical Officers in the Mofussil have hitherto frequently neglected to forward samples of urine. I have strongly advocated the desirability of all surgeons holding *post-mortem* examinations on police cases being advised regarding the great importance of forwarding for examination, along with the viscera and stomach contents, a sample of urine taken from the bladder of the deceased and enclosed in a separate stoppered and sealed bottle. Where this is not done, there is no doubt that many cases of poisoning pass undetected, for the simple reason that a specimen of the one medium through which the poison is generally eliminated from the body is not available for examination. Several years of medico-legal experience convinces me that a very considerable number of deaths from poisoning must escape detection on account of this omission. The remedy has now been adopted in a matter of such practical importance, for all Medical Officers in the province have been circularised by the Surgeon-General in order to ensure the correction of so grave an oversight.

TABLE IX

The total number of cases sent up for *post-mortem* examination, classified according to nature of death —

| | 1912 | 1913 | 1914 |
|---|------------|------------|------------|
| (i) Natural causes— | | | |
| Cases where no inquest was held | 72 | 59 | 49 |
| Cases in which an inquest was held | 22 | 36 | 43 |
| | <u>94</u> | <u>95</u> | <u>92</u> |
| (ii) Violent deaths (including deaths by poisoning) | 158 | 186 | 256 |
| TOTAL | <u>252</u> | <u>281</u> | <u>348</u> |

The actual rise in the number of police *post-mortem* examinations during the past three years has been very considerable.

The percentage of deaths from natural causes to all cases in which a *post-mortem* examination was held was as follows during the past five years —

| 1910 | 1911 | 1912 | 1913 | 1914 |
|------|------|------|------|------|
| 32.1 | 40.7 | 37.3 | 33.8 | 26.5 |

The figures shew that practically one-third of the cases sent up for *post-mortem* examination during the period under review proved to be cases of death from natural causes.

TABLE X

Violent deaths classified —

| | 1912 | 1913 | 1914 |
|--|------------|------------|------------|
| 1 Deaths by accident or misadventure | 65 | 70 | 113 |
| 2 Suicidal cases | 57 | 74 | 100 |
| 3 Homicidal cases | 23 | 18 | 17 |
| 4 Doubtful (on the evidence adduced) | 11 | 16 | 16 |
| 5 Due to rash and negligent acts (generally without criminal intent) | 2 | 8 | 6 |
| 6 Due to violence sustained during riots | 0 | 0 | 1 |
| TOTAL | <u>158</u> | <u>186</u> | <u>256</u> |

In 1912 I drew attention to a decrease in the annual number of suicidal (violent) deaths —

| 1910 | 1911 | 1912 |
|------|------|------|
| 67 | 78 | 57 |

Now there is a noticeable increase —

| 1913 | 1914 |
|------|------|
| 74 | 100 |

The percentage to total number of violent deaths during these five years works out as follows —

| | 1910 | 1911 | 1912 | 1913 | 1914 |
|-----------|------|------|------|------|------|
| Suicidal | 34.8 | 36.9 | 36.0 | 39.7 | 39.2 |
| Homicidal | 7.8 | 6.6 | 14.5 | 9.6 | 6.2 |

What factors may account for this irregular fluctuation it is quite impossible to say. So far as I am aware there was nothing about the year 1913-14 that might be made to account for the remarkable increase in suicidal cases noticeable in the above tables, nor for that matter, for the considerable increase in accidental deaths, nor for the slight decrease in homicidal ones. These remain some of the enigmas in the medico-legal statistics of a large city. The rise and fall may be purely accidental, but there they are, and the figures are at least interesting, if not actually significant.

In subsequent tables will be found analyses of the various modes of death accidental, suicidal, and homicidal, and a further consideration of these subjects may be referred to later pages of this review.

Analysis of the Deaths due to Natural Causes

There is nothing new to add for the year under review to the list of causes given in previous years, of deaths under this heading

TABLE XI

Analysis of the Accidental Violent Deaths

These may be arranged in the following manner according to the cause of death —

| 1 Poisons— | 1912 | 1913 | 1914 |
|--|------|------|------|
| (1) Opium | 2 | 1 | 4 |
| (2) Aconite | 0 | 0 | 2 |
| (3) White arsenic | 2 | 0 | 1 |
| (4) Yellow arsenic | 0 | 1 | 1 |
| (5) Carbolic acid | 1 | 1 | 2 |
| (6) Sulphuric acid | 0 | 0 | 0 |
| (7) Phosphorus | 1 | 0 | 0 |
| (8) Strychnine | 0 | 0 | 0 |
| (9) Chloral hydrate | 0 | 0 | 2 |
| (10) Mercury | 0 | 0 | 1 |
| (11) CO (from charcoal fire) | 0 | 1 | 0 |
| | 6 | 4 | 13 |
| 2 Motor-car accidents | 9 | 6 | 14 |
| 3 Falls from a height | 10 | 18 | 28 |
| 4 Tramway accidents | 4 | 3 | 6 |
| 5 Burns | 7 | 3 | 9 |
| 6 Drowning | 5 | 13 | 13 |
| 7 Carriage accidents | 6 | 3 | 6 |
| 8 Railway accidents | 5 | 6 | 6 |
| 9 Falling objects | 7 | 10 | 12 |
| 10 Bullock cart accidents | 2 | 2 | 0 |
| 11 Accidental wounds | 1 | 1 | 3 |
| 12 Lightning | 0 | 1 | 0 |
| 13 Explosion of fireworks | 1 | 0 | 0 |
| 14 Machinery accidents | 2 | 0 | 0 |
| 15 Exposure after over-indulgence in alcohol | 0 | 0 | 2 |
| 16 Hanging | 0 | 0 | 1 |
| TOTAL | 65 | 70 | 113 |

It need hardly be pointed out how the accidental deaths have of late years increased, more particularly by means of poisons, motor-car accidents, and falls from a height

Strangely enough, only two years ago, writing on the subject of accidental drowning as a cause of death in Calcutta, and comparing Coull Mackenzie's figures with mine, I noticed that they came down from an average of 35 or 36 per annum, to 5 or 6, and I accounted for the decrease in the figures by the diminished facilities for this form of accident becoming less with the improvements that had taken place in the city. Now, during the past two years the number of deaths by drowning has risen. The numbers still remain small as compared with Mackenzie's figures, but the rise is there to be noticed and to be possibly accounted for by saying that the present-day accidental drownings are mostly cases which occur in the river and have to do with the increased traffic on the

great waterway of Calcutta, and not often to be associated with ponds and wells.

TABLE XII

Analysis of the Suicidal Violent Deaths

| 1 Poisons— | 1912 | 1913 | 1914 |
|-----------------------------|------|------|------|
| (1) Opium | 23 | 35 | 35 |
| (2) Opium and alcohol | 1 | 0 | 0 |
| (3) Opium and white arsenic | 1 | 0 | 1 |
| (4) Opium and atropine | 2 | 0 | 0 |
| (5) Morphine | 3 | 1 | 0 |
| (6) White arsenic | 1 | 3 | 6 |
| (7) Yellow arsenic | 0 | 4 | 2 |
| (8) Strychnine | 2 | 0 | 1 |
| (9) Cocaine | 2 | 1 | 1 |
| (10) Hydrocyanic acid | 1 | 0 | 2 |
| (11) Carbolic acid | 0 | 3 | 3 |
| (12) Copper sulphate | 0 | 0 | 1 |
| (13) Nitric acid | 0 | 2 | 1 |
| (14) Barium carbonate | 0 | 1 | 0 |
| | 36 | 50 | 53 |
| 2 Hanging | 13 | 14 | 28 |
| 3 Drowning | 1 | 1 | 1 |
| 4 Gunshot | 3 | 4 | 0 |
| 5 Cut-throat | 3 | 3 | 3 |
| 6 Burning | 0 | 2 | 15 |
| 7 Railway accident | 1 | 0 | 0 |
| TOTAL | 57 | 74 | 100 |

The percentage of suicidal deaths to the total number of violent deaths for the past five years is as follows —

| 1910 | 1911 | 1912 | 1913 | 1914 |
|------|------|------|------|------|
| 34.8 | 36.9 | 36.0 | 39.7 | 39.2 |

The above table of figures I always consider to be of the greatest interest and importance. The figures pertaining to accidental deaths are important, indeed, as tending to indicate the directions in which improvements may perhaps be made, with a view to averting similar accidents in the future. The figures for homicidal cases are fortunately not very large, at any rate for a city of the size and population of Calcutta. Those for suicide, however, are not only very considerable, varying during the past five years from about 35 per cent to 40 per cent of the total violent deaths, but also indicate both the ways and means of committing the offence, as well as the cause and effects of the crime. They are figures which State intervention may, in the course of time, alter for the better, whether it be by putting such means as poisons out of the way of would-be culprits, or by causing the people themselves to be elevated, or again by punishing those who attempt the crime.

Of course, as I have said before, opium may be put out of reach of the weak-minded, and the sale of poisons may be controlled in the strictest possible manner, but yet it may be

utterly impossible to keep an intending suicide from twisting his *dhoti* cloth into a rope and hanging himself. But this does not constitute a very strong argument against the obligation on the part of the State to apply every means in its power for the stopping or at any rate for the controlling of crime by removing facilities beyond the reach of the weak-minded and foolish. For the rest it must depend upon the co-operation of the people themselves. The people must rise to the occasion and, appreciating what the State does for them, must make every endeavour to help in the matter. When I read the police history of case after case which turns out to be one of suicide, and find that, in a large proportion, the crime is the outcome of some very trivial matter, such as the reprimand of a mother-in-law for neglect of household duties, acting on the mind of a youthful daughter-in-law whose education amounts to practically *nil*, whose whole system is one bunch of nerves, *i.e.*, hyperneurotic in the extreme, whose interests in life are confined to household drudgery and absolutely nothing beyond, and whose hopes and aspirations are a minus quantity, my great wonder is that a good many more do not end their uninteresting and unhappy lives by means of the 'bare bodkin'."

Education and emancipation, social reform in general, and a consequent raising of the interest in life, these are what seem to be so much required. The people must learn the need for these reforms themselves and must teach the rising generation utility, self-help and such other qualities as will make it consider life worth living, as something too sweet and useful to destroy, and as a thing intended for the benefit of others and not merely for the selfish use, or rather abuse, of the possessor.

While on, what I may call, the 'moral' aspect of suicide I must say a few words *en passant* regarding suicides by burns. From 1910 to 1914 the deaths by suicide of this kind were as follows—

| 1910 | 1911 | 1912 | 1913 | 1914 |
|------|------|------|------|------|
| 1 | 1 | 0 | 2 | 15 |

In the latter year this mode of self-destruction became, what may be termed, "fashionable" among the disheartened, weak-minded, neurotic young women of the class above referred to. These were not infrequently young widows.

In the same way that there is doubtless a large imitative factor in the perpetration of crime generally, so it is more than likely that imitation plays a very considerable part in the self-immolation by burning in the case of young women. It is difficult to substantiate such a theory when the two cases in 1913 had no case during 1912 to imitate and but one case in 1911 and one in 1910. The 15 cases in 1914 had certainly 2 cases in the preceding year to

copy and it may well be that the later cases in 1914 were following the lead of the earlier ones who had 'sacrificed' themselves in the same year. Comparisons of and deductions from the statistics of one year and another cannot give us much foundation for the building of a correct theory. I cannot venture to offer an explanation as to why burning should have become more fashionable than any other form of self-destruction with perhaps the single exception of suicide by opium and concurrently with a diminution in the number of cases of suicide by means of this drug. Is it a mere matter of a convenient means, or is there some underlying idea based in any way on religious belief?

TABLE XIII

I. *Opium suicides—*

(a) According to sex—

| | 1912 | 1913 | 1914 |
|---------|---------------------------------|--------------------------------|----------------------------------|
| Males | 12 | 28 | 18 |
| Females | 11 { Prostitute 3 Others 8 } | 7 { Prostitute 1 Others 6 } | 17 { Prostitute 1 Others 16 } |
| TOTAL | 23 | 35 | 35 |

(b) According to age periods—

| (b) According to age periods— | | 1912 | | 1913 | | 1914 | |
|-------------------------------|---|-------|---------|-------|---------|-------|---------|
| | | Males | Females | Males | Females | Males | Females |
| From 10—15 years of age | | 0 | 1 | 0 | 0 | 0 | 0 |
| " 15—20 " | " | 1 | 2 | 0 | 2 | 1 | 5 |
| " 20—25 " | " | 5 | 2 | 0 | 0 | 4 | 6 |
| " 25—30 " | " | 2 | 3 | 4 | 1 | 1 | 0 |
| " 30—35 " | " | 3 | 0 | 1 | 0 | 3 | 1 |
| " 35—40 " | " | 1 | 1 | 3 | 2 | 0 | 0 |
| " 40—45 " | " | 0 | 1 | 0 | 2 | 2 | 0 |
| " 45—50 " | " | 0 | 0 | 0 | 0 | 0 | 1 |
| " 50—55 " | " | 0 | 1 | 1 | 0 | 2 | 0 |
| " 55—60 " | " | 0 | 0 | 1 | 0 | 0 | 1 |
| TOTAL | | 12 | 11 | 28 | 7 | 18 | 17 |

II. *Suicides by hanging—*

(a) According to sex—

| | 1912 | 1913 | 1914 |
|---------|--------------------------------|--------------------------------|---------------------------------|
| Males | 9 | 6 | 16 |
| Females | 4 { Prostitute 1 Others 3 } | 8 { Prostitute 2 Others 6 } | 12 { Prostitute 3 Others 9 } |
| TOTAL | 13 | 14 | 28 |

(b) According to age periods—

| (b) According to age periods— | | 1912 | | 1913 | | 1914 | |
|-------------------------------|-------------------|-------|---------|-------|---------|-------|---------|
| | | Males | Females | Males | Females | Males | Females |
| From | 5-10 years of age | 0 | 0 | 0 | 0 | 0 | 0 |
| " | 10-15 " | 1 | 1 | 0 | 0 | 1 | 1 |
| " | 15-20 " | 0 | 1 | 1 | 2 | 1 | 1 |
| " | 20-25 " | 4 | 1 | 3 | 1 | 3 | 3 |
| " | 25-30 " | 1 | 0 | 0 | 1 | 3 | 2 |
| " | 30-35 " | 1 | 0 | 1 | 2 | 0 | 0 |
| " | 35-40 " | 0 | 1 | 0 | 0 | 0 | 0 |
| " | 40-45 " | 1 | 0 | 0 | 0 | 0 | 0 |
| " | 45-50 " | 0 | 0 | 0 | 1 | 1 | 0 |
| " | 50-55 " | 0 | 0 | 1 | 0 | 2 | 1 |
| " | 55-60 " | 1 | 0 | 0 | 1 | 0 | 1 |
| TOTAL | | 9 | 4 | 6 | 8 | 16 | 12 |
| | | 13 | | 14 | | 28 | |

TABLE XIV

Cases of suicidal violent deaths classified according to race—

| | 1912 | 1913 | 1914 |
|-------------------|--|--|--|
| Hindus | 46 | 60 | 86 |
| Mahomedans | 2 | 7 | 7 |
| Eurasians | 3 { Opium 1 Hanging 1 Gunshot 1 | 6 { Gunshot 2 Opium 3 Barium Carbonate 1 | 3 { Hanging 1 Drowning 1 Burning 1 |
| Europeans | 5 { Opium 1 Gunshot 1 Strychnine 1 | 1 Gunshot | 1 Hanging |
| Chinese | 1 Hanging | 0 | 2 Opium 1 Hanging 1 |
| Indian Christians | 0 | 0 | 1 |
| TOTAL | 57 | 71 | 100 |

TABLE XV

Analysis of the homicidal violent deaths according to mode of occurrence —

| | 1912 | 1913 | 1914 |
|-----------------------|------|------|----------------|
| 1 Stabbing | 5 | 1 | 7 |
| 2 Kicks, blows, etc | 2 | 2 | 0 |
| 3 Strangulation | 1 | 1 | 0 |
| 4 "Lathi" blows | 2 | 5 | 2 |
| 5 Gunshot | 5 | 4 | 3 (European 1) |
| 6 Cut-throat | 2 | 5 | 3 |
| 7 Suffocation | 1 | 0 | 0 |
| 8 Decapitation | 1 | 0 | 1 |
| 9 Explosion of a bomb | 0 | 0 | 1 |
| 10 Unknown | 1 | 0 | 0 |
| TOTAL | 23 | 18 | 17 |

TABLE XVI

A certain number of violent deaths are classified as 'doubtful' in Table X and these represent cases in which the Coroner's jury found it impossible, on the evidence adduced, to arrive at a definite conclusion as to whether the deaths were accidental, suicidal, or homicidal in their nature and so they left their verdict 'open' on this point —

| 1 Poisons— | 1913 | 1914 |
|-----------------------------------|------|------|
| (1) Opium | 10 | 0 |
| (2) Yellow arsenic | 1 | 0 |
| (3) Hydrochloric acid | 1 | 0 |
| (4) Narcotic | 1 | 0 |
| 2 Drowning | 0 | 10 |
| 3 Injury | 0 | 2 |
| 4 Unknown | 0 | 3 |
| 5 Tram-car | 0 | 1 |
| 6 Violence of a mechanical nature | 1 | 0 |
| TOTAL | 16 | 16 |

TABLE XVII

The following is the analysis of the cases which were returned by the Coroner and his jury as cases of death due in some manner to rashness and negligence on the part of others (without criminal intent) —

| | 1912 | 1913 | 1914 |
|-------------------------------|------|------|------|
| Escaped tiger (from a circus) | 0 | 0 | 1 |
| Carnage | 1 | 1 | 1 |
| Motor-car | 0 | 2 | 3 |
| Railway | 0 | 2 | 0 |
| Throwing of a heavy object | 1 | 0 | 0 |
| Cycle | 0 | 1 | 0 |
| Tram-car | 0 | 2 | 1 |
| TOTAL | 2 | 8 | 6 |

The following are a few discoveries of interest from the point of view of pathology and morbid anatomy, made in the cases that came on the *post-mortem* table —

I Perforation and rupture of the internal organs due to violence alone —

| | 1912 | 1913 | 1914 |
|---|------|------|------|
| Liver and lungs | 0 | 0 | 3 |
| Liver | 6 | 6 | 9 |
| Liver and spleen | 0 | 4 | 4 |
| Liver, spleen, and kidney | 0 | 0 | 1 |
| Liver, spleen, and lungs | 0 | 0 | 2 |
| Spleen | 1 | 1 | 5 |
| Spleen and kidney | 0 | 0 | 2 |
| Spleen and lungs | 0 | 0 | 1 |
| Spleen, lungs, pericardium, and root of aorta | 0 | 0 | 1 |
| Liver, lungs, pericardium, valves, heart, great vessels | 0 | 0 | 1 |
| Stomach | 0 | 1 | 1 |
| Intestines | 3 | 1 | 4 |
| Kidneys | 0 | 1 | 2 |
| Bladder | 2 | 1 | 0 |
| Uterus | 0 | 1 | 0 |
| Lungs | 1 | 3 | 12 |
| Pleura | 0 | 0 | 8 |
| Larynx | 0 | 0 | 1 |
| Bronchus, lungs, pericardium, and heart | 0 | 0 | 1 |
| Lungs and pericardium | 0 | 0 | 1 |
| TOTAL | 13 | 19 | 59 |

II Perforation and rupture of heart and large vessels due to disease or to violence supervening on a diseased condition of the parts —

| | 1912 | 1913 | 1914 |
|---------------------------|------|------|------|
| Pericardium | 2 | 1 | 4 |
| Right auricle | 0 | 0 | 0 |
| Left auricle | 0 | 0 | 0 |
| Right ventricle | 1 | 0 | 0 |
| Left ventricle | 4 | 1 | 0 |
| Heart in all its cavities | 0 | 1 | 1 |
| Right pulmonary vein | 0 | 0 | 0 |
| Thoracic aorta, 1st part | 0 | 0 | 1 |
| Thoracic aorta, 2nd part | 0 | 0 | 1 |
| Abdominal aorta | 0 | 0 | 0 |
| TOTAL | 7 | 3 | 7 |

III Disease of heart and blood vessels —

| (a) Atheroma — | | 1912 | 1913 | 1914 |
|----------------|---|----------------|----------------|----------------|
| | Aortic valve | 56 | 34 | 44 |
| | Thoracic aorta | 61 | 45 | 45 |
| | Pulmonary artery | 0 | 1 | 0 |
| | Aneurysm of aorta with a rupture into pericardium | 0 | 0 | 1 |
| | Coronary artery | 0 | 1 | 0 |
| (b) | Endocarditis of mitral valve | 1 | 0 | 0 |
| (c) | Mitral valve | Aortic valve | Thoracic aorta | Heart |
| | 1912 1913 1914 | 1912 1913 1914 | 1912 1913 1914 | 1912 1913 1914 |
| Stenosis | 1 0 0 | 4 0 0 | 0 0 0 | 0 0 0 |
| Vegetation | 0 0 1 | 0 0 0 | 0 0 0 | 0 0 0 |
| Ulceration | 0 0 0 | 0 0 1 | 2 0 0 | 0 0 0 |
| Aneurysm | 0 0 0 | 0 0 0 | 5 2 2 | 0 0 0 |

IV Abnormalities In regard to weight

The adult liver of least weight was —

| 1910 | 1911 | 1912 | 1913 | 1914 |
|-------|-------|--------|-------|-------|
| 22 oz | 22 oz | 15½ oz | 20 oz | 18 oz |

The adult liver of greatest weight was —

| 1910 | 1911 | 1912 | 1913 | 1914 |
|-------|--------|--------|--------|-------|
| 91 oz | 115 oz | 107 oz | 104 oz | 91 oz |

The adult spleen of least weight was —

| 1910 | 1911 | 1912 | 1913 | 1914 |
|------|------|------|-------|------|
| 2 oz | 1 oz | 1 oz | 1½ oz | 1 oz |

The adult spleen of greatest weight was —

| 1910 | 1911 | 1912 | 1913 | 1914 |
|--------|-------|--------|--------|--------|
| 23½ oz | 48 oz | 42½ oz | 33½ oz | 60½ oz |

V—Abnormalities In the way of Disease, etc —

| | Liver | | | Spleen | | | Kidneys | | | Ovaries | | | Uterus | | | Brain | | | Lungs | | |
|---------------------|-------|-----|-----|--------|-----|-----|---------|-----|-----|---------|-----|-----|--------|-----|-----|-------|-----|-----|-------|-----|-----|
| | 1912 | '13 | '14 | '12 | '13 | '14 | '12 | '13 | '14 | '12 | '13 | '14 | '12 | '13 | '14 | '12 | '13 | '14 | '12 | '13 | '14 |
| Abscess | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chilosis | 38 | 57 | 44 | 0 | 0 | 0 | 5 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waxy degeneration | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Infract | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cysts | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 4 | 7 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Granular kidney | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tumour | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Consolidation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fibroid changes | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Calcareous deposits | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Gumma | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Stone | 1 | 4 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fatty degeneration | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

SERO DIAGNOSIS OF SYPHILIS—III

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AND

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ANALYSIS OF 174 CASES WHOSE W R WAS TESTED, TO CLEAR UP THE DIAGNOSIS

I Of the cases in which a sore was present at the time of examination there were —

| | | | | |
|------|------------------|----|----------|------|
| Sore | 1 to 10 days old | 10 | Positive | 5 |
| | 11 to 20 | " | 13 | " 9 |
| | 21 to 30 | " | 44 | " 42 |

Of the two negative cases one was observed for three months and no symptoms appeared. We have thus abundant evidence that the W R is of use in clearing up the diagnosis. More especially is this the case when the sore is clinically a soft sore for of 8 such cases 5 gave a positive reaction which was confirmed by subsequent events.

II The following cases gave no history of having had a genital sore at any time —

| | | | |
|------------------------------|---|----------|---|
| Paraplegia | 1 | Positive | 1 |
| Suspicious symptoms in women | 4 | " | 3 (of which in 2 there was a history of S in the husband) |
| Eruption with itching | 5 | " | 2 |
| A typical eruption | 5 | " | 3 |
| Psoriasis | 6 | " | 4 |

| | | | |
|-----------------------|---|----------|---|
| Enlarged lymph glands | 6 | Positive | 4 (one of the negative cases after wards turned out to be tubercular) |
|-----------------------|---|----------|---|

| | | | |
|-----------------------|---|---|---|
| Sore throat | 3 | " | 3 |
| " Rheumatism " | 1 | " | 1 |
| Alopecia | 3 | " | 2 |
| Persistent headache | 3 | " | 2 |
| Heart disease | 2 | " | 2 |
| Various ulcers | 3 | " | 2 |
| Frequent miscarriages | 7 | " | |

III In 8 cases the patient admitted having had a sore but denied having had any rash, loss of hair, etc. However, the symptoms roused the suspicion of the medical attendant and the W R was found to be positive in 5 cases.

IV In 12 cases the patient admitted having had gonorrhoea, but denied having ever had a sore—6 positive, of which one was a case of optic neuritis in which marked benefit followed antiluetic treatment (Salvarsan).

V In 5 cases the physician desired to have information as to the results of prolonged antiluetic treatment, which had been intermitted for some months prior to the examination. In four cases a positive W R was obtained, in the remaining case a renewal of treatment, to make sure was suggested.

In 23 cases of *cerebro-spinal syphilis* the results were —

Blood positive 11

Blood negative 12—of these 4 gave a positive W R with the cerebro-spinal fluid, in the other 8 cases no cerebro-spinal fluid was obtainable

In two cases a *provocative injection of salvarsan* was given to clear up the doubt as to the presence of latent lues. The blood was examined in each case three weeks after the injection and the W R was found to be positive

The conclusions which may be drawn from these cases are —

(1) The W R is of great service in clearing up any doubt that may exist in the mind of the physician

(2) Although the W R of the blood will often be of service in confirming the diagnosis of cerebro-spinal syphilis yet it is preferable in all such cases to obtain some cerebro-spinal fluid for the test very obscure

(3) In very obscure cases in which, despite denials made by the patient, there is reason to suspect that syphilis is present a provocative injection of salvarsan will be of great use in bringing into evidence the presence of the treponema in his tissues, the blood being sent for testing three weeks thereafter

ACIDOSIS AND OEDEMA IN ITS RELATION TO GLAUCOMA

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EVERY one in the profession and very many outside it have heard of acidosis. It has been pressed in as the cause of many diseases. Two years ago I was presented with a copy of book on Oedema by Dr Martin E Fisher, Professor of Pathology, Oaklands School of Medicine, California, along with the apparatus and detailed instructions how to determine the acidity of urine, and with the request to determine its acidity in all cases of glaucoma under my care. Dr Fisher's book I read with great interest and care. It includes a large amount of carefully-done experimental work on dead tissues and on living animals. It also deals with the oedema of special organs, and is, I have little doubt, the basis of much of the theories on acidosis. While it is a most interesting and suggestive book, it is not convincing from a clinical point of view. We all know how disappointing laboratory

results often are when we proceed to apply them clinically

The conclusions to be arrived at from reading this book are that many oedemas (including glaucoma as an oedema) are caused by acidosis

How are we clinically to determine what is acidosis? The only means we have is to determine the normal acidity of the urine, and what is to be considered pathological variations from that normality

To determine acidity the solutions used are phenolphthalein solution as the indicator and decinormal sodium hydrate solution as the neutralizer. The former solution when added in a drop or two to the acid solution to be determined turns permanently red when the sodium hydrate solution is added to beyond the neutral point. It is a very delicate test and a very simple one to apply. A glass tube is used having 5 cc marked on the bottom and, above which it is marked in centimetres and again in tenths of centimetres. The urine to be examined is added up to the 5 cm marked, one or two drops of phenolphthalein solution is next added, and to this is added decinormal sodium hydrate solution, shaking the tube until its contents change colour permanently. Every cmm of the sodium hydrate solution added being treated as one degree of acidity. Any one desirous can calculate out the acidity in terms of hydrochloric acid. I asked my friend what was regarded as normal acidity in America, he said 30 was the accepted physiological normal. I asked him how this normal was ascertained. He did not know. I was not satisfied with this normal. Major Black, IMS, Chemical Examiner to the Punjab Government, kindly prepared the phenolphthalein and decinormal sodium hydrate solution for me. I thus made sure that the solutions were correct. I got from a cantonment station 600 specimens of urine from British soldiers and 600 specimens from Indian soldiers. These were the first specimens of urine passed in the morning. These troops were in perfect health, in full ordinary military duty and roughly speaking, between the ages of 20 and 30. British troops are meat-eaters, the Indian troops are for practical purposes vegetarians. Captain L G Gibson, RAMC, and Dr Mehta kindly assisted me in getting through this work with the requisite quickness. This work was done in the month of November when the temperature and climatic conditions are somewhat like a dry month of June in England. So that the amount of perspiration and of urine passed would be about the same as in England in June. The state of concentration or dilution of urine will thus be understood. The average acidity in the case of Indian troops was slightly higher, about one degree, than that of British troops, so that I mix

up the figures for the following statistical table —

| 1,200 specimens of urine examined | | |
|-----------------------------------|--------------------------|--------------------------|
| No. of specimens | Percentages of specimens | Acidity in mm on degrees |
| 10 | 0.83 | 110 |
| 50 | 4.16 | 100 |
| 60 | 5.00 | 90 |
| 100 | 8.35 | 80 |
| 170 | 14.16 | 70 |
| 150 | 12.50 | 60 |
| 180 | 15.00 | 50 |
| 180 | 15.00 | 40 |
| 170 | 14.16 | 30 |
| 100 | 8.33 | 20 |
| 30 | 2.50 | 10 |

From these figures which I think are ample enough, it seems to me that an average determined thereon is worthless. There is such a wide range in health that we could not say of a given case within these limits that a particular condition is due to a relatively acid condition of the circulating medium taking the urine as an indicator of that condition. I have examined the urine of many patients suffering from glaucoma and the acidity would come well within the limits of health as indicated by the above figures so that we could arrive at no conclusion as to the connection of acidosis with glaucoma.

Dr. Fisher's book however, as the title implies, treats of oedema which may be caused by other conditions than acidosis though a great deal of importance is attached to acidosis.

Dr. Fisher is as far as I am aware the first man to advance the view that glaucoma is primarily an oedema, mechanical factors on which other theories of glaucoma seem to be based being secondary to this oedema. I think that the mechanical theories are exceedingly far from convincing as regards the causation of glaucoma and I am disposed to regard Dr. Fisher's view as much more rational. The oedema of the vitreous, though it may not have acidosis as its cause, may be caused by a poison circulating in its nutrient medium. What that poison is is another question. Those who hold that we would be better without a colon might say it was a poison generated in the colon. Glaucoma cases, in my experience, are far from being necessarily subjects of chronic troubles of the colon. But we do know that there are definite local oedemas caused by definite poisons circulating in the blood.

To re-state the view which I regard as much the most rational yet advanced that glaucoma is due to an autogenous toxin which has a special selective affinity for the vitreous thus causing an oedema of that body. This oedema presses forward the lens zonula and iris and presses on the ciliary body thus bringing into action the mechanical factors on which so much stress has hitherto been laid as the cause of glaucoma.

A CASE OF MALINGERING

By A. W. OVERBECK WRIGHT, M.D.,
MAJOR, I.M.S.

I venture to submit the following statement of a case of malingering, as it seems to me of some importance from a medico-legal point of view.

On 17th April 1915 I was in camp with a wing of the ——. At about 2 p.m. I received a report from the S. A. S. that a severe case of colic had reported at the hospital and that he wished me to see the case. I went over to the hospital tent and found the patient lying in what seemed a state of collapse. His breathing was shallow and very slow, his pulse barely perceptible, his whole body cold and clammy and he complained of great pain in the left hypochondrium. He had reported at hospital about 1-30 p.m. and Spt. Ammon Aromat 3i had been administered to him and it was after drinking it that the collapse had occurred.

I had seen the man myself about 12 noon, and he then casually had said something about having been beaten about an hour previously by some of the other sepoys, and had shown me four slight bruises on his back.

He had passed urine and faeces normally about 12-30 p.m. There was no flatulent distension of the abdomen. The knees were not drawn up, and there was no fixation of the abdominal muscles.

I was at a loss to account for the condition but feared a possible rupture of the spleen as one of the bruises though slight and somewhat high up was still in the neighbourhood of the splenic area. The delay in the manifestation of the symptoms seemed against this diagnosis however. Still fearing hæmorrhage, I forbade further stimulants but injected ergotine $\frac{1}{100}$ gr. and applied hot fomentations over the heart and hot bottles to the extremities. At 4 p.m. the patient seemed, if anything, to be worse. He was restless and yawning and itching and hiccough were troubling him. His pulse showed no improvement and he was still cold and clammy and complaining of much pain in the left hypochondrium. About this time he was given an injection of atropine $\frac{1}{6}$ gr. Morphine Hydrochloride $\frac{1}{4}$ gr. This quieted him a little, but at 5 p.m. his condition seemed to me so grave that in view of an early march next morning I arranged for his statement regarding the assault to be recorded and for leaving him behind with a S. A. S. to look after him. About 7 p.m. he had begun to improve, and by 9 p.m. I had no further anxiety about him though how to account for his condition puzzled me. Hæmorrhage and flatulent colic were negatived, as also any injury to the abdominal viscera for he passed both urine and faeces normally. I could

only suppose that some bruising of the pleura or diaphragm had reflexly affected the innervation of the heart, though physical examination failed to elicit any objective symptoms, beyond the slight external bruising already mentioned and the delay in the appearance of symptoms was against it.

Two or three days later the O C the detachment told me he had been informed that this patient was simply malingering and asked me if such a thing were possible. Remembering the various points that had puzzled me about the case, I replied in the affirmative, but said until I saw such a condition maintained, in my presence, under similar treatment, I could make no definite statement.

On 25th April the patient rejoined the hospital. The "poor man" had ridden some nine miles in a *khajawa* and was very very ill, four anxious comrades supported his tottering footsteps across the verandah and to his bed in the ward. Nothing could be found to account for all this, the marks of bruising even having completely disappeared.

Half an hour later I was recalled to hospital to see "a very urgent case." On my arrival, finding there the subadar who had first spoken about malingering, and the patient being a sepoy in practically the same condition as the one whom we have just discussed the same slow shallow respiration, the same imperceptible pulse the same cold clammy body and extremities, I suspected this was an "exhibition case" and with the utmost care treated him exactly as I had done the previous case and with the same lack of success. After nearly an hour's work I was satisfied and went to report to the O C. He came to see the case and a few words brought about a marvellous recovery and sent the sufferer laughing back to the "lines." The case who had required four men to assist him across a verandah in the morning was now quite fit to carry his own bedding and kit over a quarter mile to the quarter-guard and to begin two months hard labour the following day. At the time I assumed his motive to be either a desire to enhance the punishment of those assaulting him or a wish to avoid punishment himself, but I now hear it was to win a bet made to him by an officer's servant.

The first man was a Punjabi Mussulman and the second a Pathan and the subadar says several men with the wing can produce such a state and that they do it to "amuse the others."

I have been unable to discover the *modus operandi* but they apparently commence proceedings by holding their breath.

It is the first I have ever heard of such a case and as it might in a charge of assault seriously affect the punishment of the assailants I thought it as well to put it on record.

SOME CASES OF TYPHOID AND PARATYPHOID

By M L TRESTON,

LIEUT. I M S

TYPHOID fever in colder climates produces a series of signs and symptoms which are fairly characteristic.

Prodromata—Headache, pain in the back and limbs, anorexia, perhaps slight diarrhoea.

Fever of the typical staircase type subsiding by lysis, at the end of the fourth week.

Cardio-vascular symptoms represented by a comparatively slow pulse, dicrotic at the commencement of the second week, later rapid and thready. A heart with evidences of toxic poisoning, and blood showing leucopænia and anaemia. Then, again, one expects, a mild bronchitis, often general sometimes localized to one or other base, and gastro-intestinal pain general, or in the right iliac fossa, gurgling tympanites, diarrhoea 33 per cent and enlarged spleen.

Delirium, usually of the quiet type, a scanty albuminous urine coupled with the typhoid tongue and characteristic rose spots, complete the picture.

In the cases under observation very few of the above signs and symptoms were reproduced.

Headache was universal and frontal in type. One patient complained of epigastric pain, another of pain in the R I F. The other cases gave no pain symptoms.

Fever, distinctly atypical, and though subsiding by lysis, irregular as to time. In no case was the heart in any way affected, the pulse was the usual slow type, showing marked dicrotism at the end of the first week and becoming normal at the end of the second week. Blood showed no leucopænia but eosinophilia was observed in nearly all cases.

One case gave evidence of a mild diffuse bronchitis and another of delirium of the active type. The typical typhoid tongue was present in all cases, but there was complete absence both of rose spots and of cutaneous desquamation.

Complications were absent and recovery gradual and uneventful. In no case did exaggeration of a symptom cause uneasiness.

Amongst the cases of para-typhoid, and it might be observed in passing that all were of the para-typhoid (A variety, a striking contrast to the type prevalent in Europe), signs and symptoms, with the exception of two, were ill pronounced.

Of these two headache of the occipital type extending down the neck was universal, there was no rigidity. The remaining outstanding symptom abdominal pain was present in the great majority of cases (80 per cent) general or localized in the epigastrium or in the right hypochondrium, seldom in the R I F, coming on towards the end of the first week, never of

great severity, and usually subsiding with the temperature. The latter, as a rule, came down about the 18th day and had associated with it all through, a regular, slow pulse.

Diarrhoea was present in two cases only 15 per cent, and was easily checked.

Here, again, blood examination yielded marked eosinophilia, and in connection therewith, in five cases (33 per cent) the ova of ankyllostomata duodenalis found in the faeces, while two other cases served as hosts for the ascaris.

Two cases only relapsed (15 per cent) and two died from complications (15 per cent). The causes of death in these two cases are chronicled under the heading "Results."

The bacteriological methods of diagnosing the disease were those used in most laboratories. Blood culture on the 4th day, Widal on the 10th day, faeces on the 15th day, and urine at about the end of the third week. In all cases the *modus operandi* was Culture (MacConkey's), Subculture (Agar), agglutination test up to 1:100 dilution.

The investigations regarding the origin of the disease and the elucidation of the mode of spreading were more difficult. (a) water from streams and bathing tanks, (b) milk, (c) meat, (d) fish from streams, all from the lines to which the diseases were confined, yielded negative results, no pathogenic organisms were found.

Typhoid "carriers" only remained and with that purpose in view all cooks, banyas, sweepers, etc., employed in the lines were brought to hospital, and their stools were examined and cultured in the usual way. Two typhoid carriers were thus isolated, one a "sweet-seller," and the other, a butcher. All others gave negative results.

The treatment adopted in both typhoid and para-typhoid cases was (1) general, (2) symptomatic. Chlorine mixture, other than that needed to meet special requirements, was the only medicine given throughout.

As to the results

Typhoid—

| | |
|---------------|------------|
| Deaths | <i>Nil</i> |
| Complications | <i>Nil</i> |

Para-typhoid—

| | | |
|----------|-----|-----|
| Relapses | Two | 15% |
| Deaths | Two | 15% |

One died from excessive hæmorrhage lower part of ileum. Three eroded arteries about six inches apart.

The other died from superadded acute pneumonia.

The temperature charts of some of these cases are reproduced and with the para-typhoid charts is one a *p u o* which from the similarity of signs

and symptoms one would feel inclined to call para-typhoid clinically and leave the fault at the door of the bacteriologist.

In conclusion, I should like to express my gratitude to Sub-Asst Surgn J D Bailey, in sub-charge of the laboratory, Kohat for the excellent aid rendered in the compiling of these cases.

A Minor of Hospital Practice.

OPERATION OF SHORTENING THE ROUND LIGAMENTS FOR THE CURE OF RETRO DISPLACEMENTS OF THE UTERUS

BY T JACKSON,

LIEUT COLONEL, I M S,

Surgeon Superintendent, St George's Hospital, Bombay

I WAS greatly interested on reading the article by Lieut Hance, I M S, on the "Sling" operation for the treatment of retroversion of the uterus, published in the *Indian Medical Gazette* of July, 1914.

2 Retroversion of the uterus is perhaps the commonest uterine ailment to which women are liable, and particularly among European women in the tropics is the cause of much suffering. It is in married subjects who have borne children that the condition is most often seen, and in them it is commonly complicated by prolapse of varying degrees. It is also met with not infrequently in girls soon after puberty. In addition to the other troubles caused by retroversion it leads in severe cases to sterility and even if conception does take place such a conception generally ends in abortion. Sterility in itself is not often, in these days, considered a disadvantage, but in some cases it does cause great mental distress.

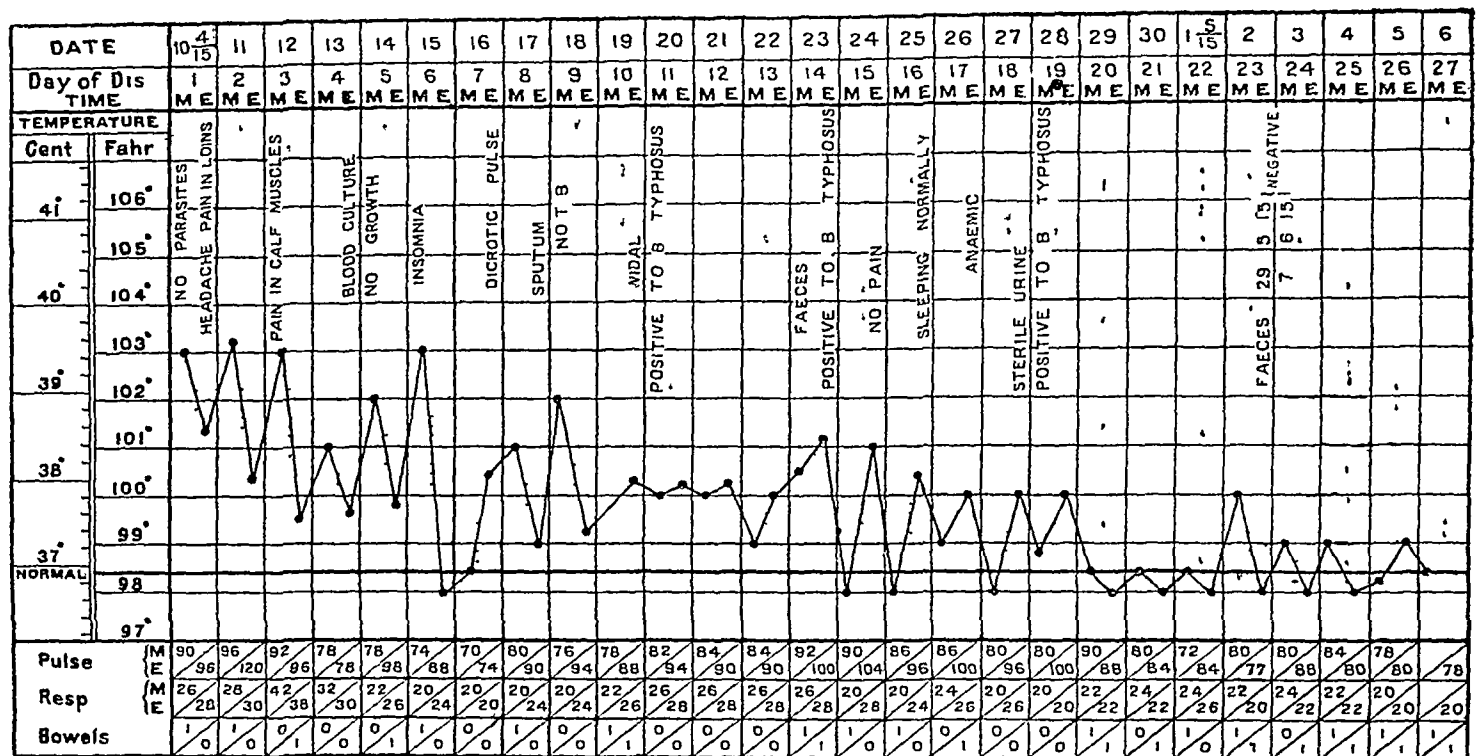
3 For the cure of the condition I practice Alexander's operation, *viz*, shortening of the round ligaments, and I find the results so satisfactory that I have continued it, although I did think, after reading the article referred to, of giving it up in favour of the "Sling" operation.

4 The operation of shortening the round ligament is very simple, and is not so serious an undertaking as the "Sling" operation in that a laparotomy is not required. A skin incision is made, as for the operation for the radical cure of inguinal hernia. Having exposed the tendon of the external oblique muscle it is incised parallel to its fibres from the external abdominal ring to beyond the middle of Poupart's ligament. The tendon is then reflected upwards and downwards from the fleshy fibres of the internal oblique muscle. At a point about the middle of Poupart's ligament the fibres of the internal oblique muscle are raised by blunt dissection

SOME CASES OF TYPHOID AND PARA-TYPHOID.

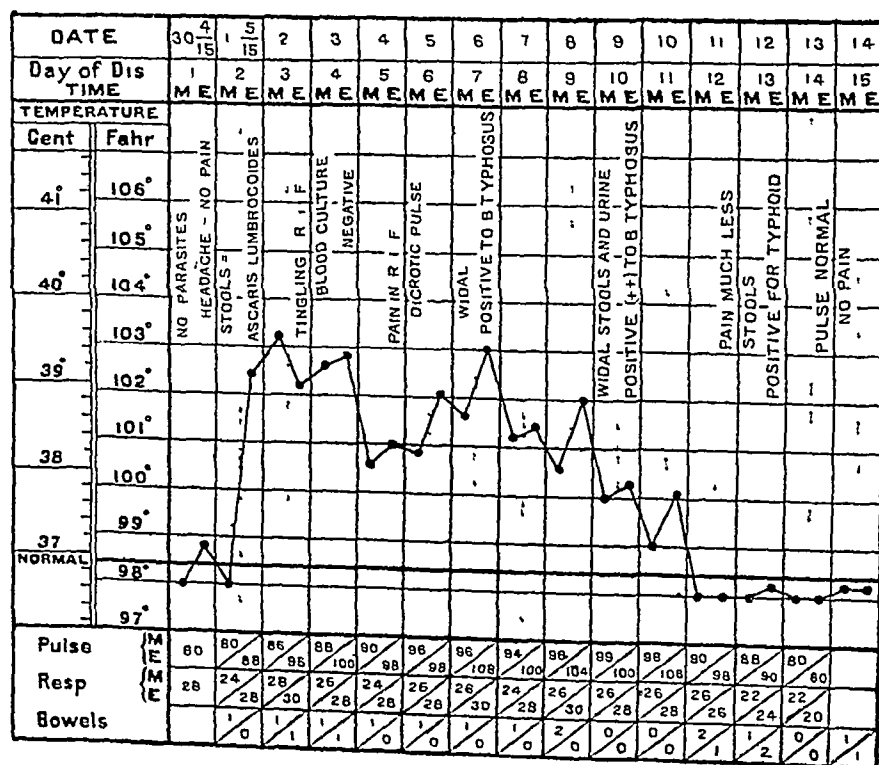
By Lieut M L TRESTON, I M S

CHART I



No 2771 B S, 37th Dogras Age 20 Typhoid No complications Recovery

CHART II

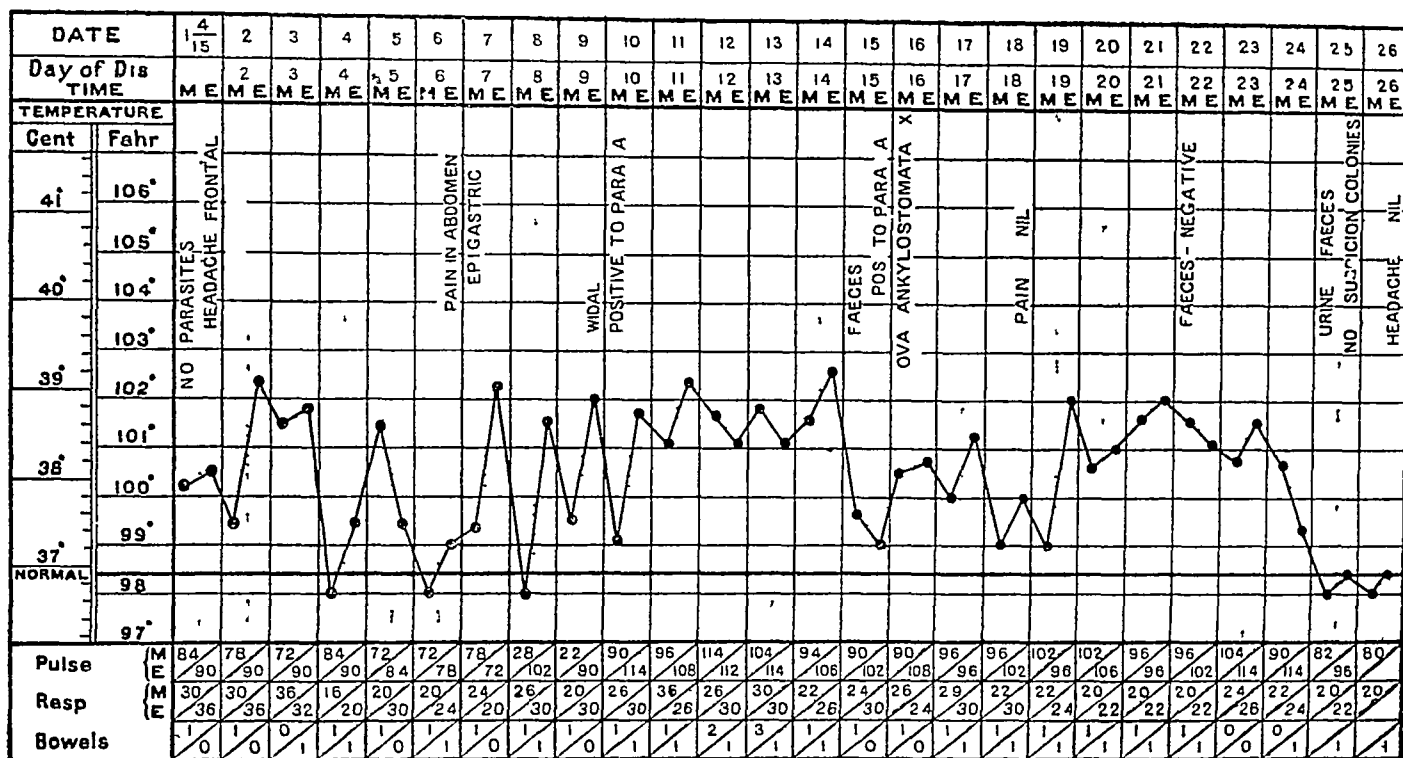


No 2778 S S, 37th Dogras Age 18 Typhoid No complications Recovery

SOME CASES OF TYPHOID AND PARA-TYPHOID

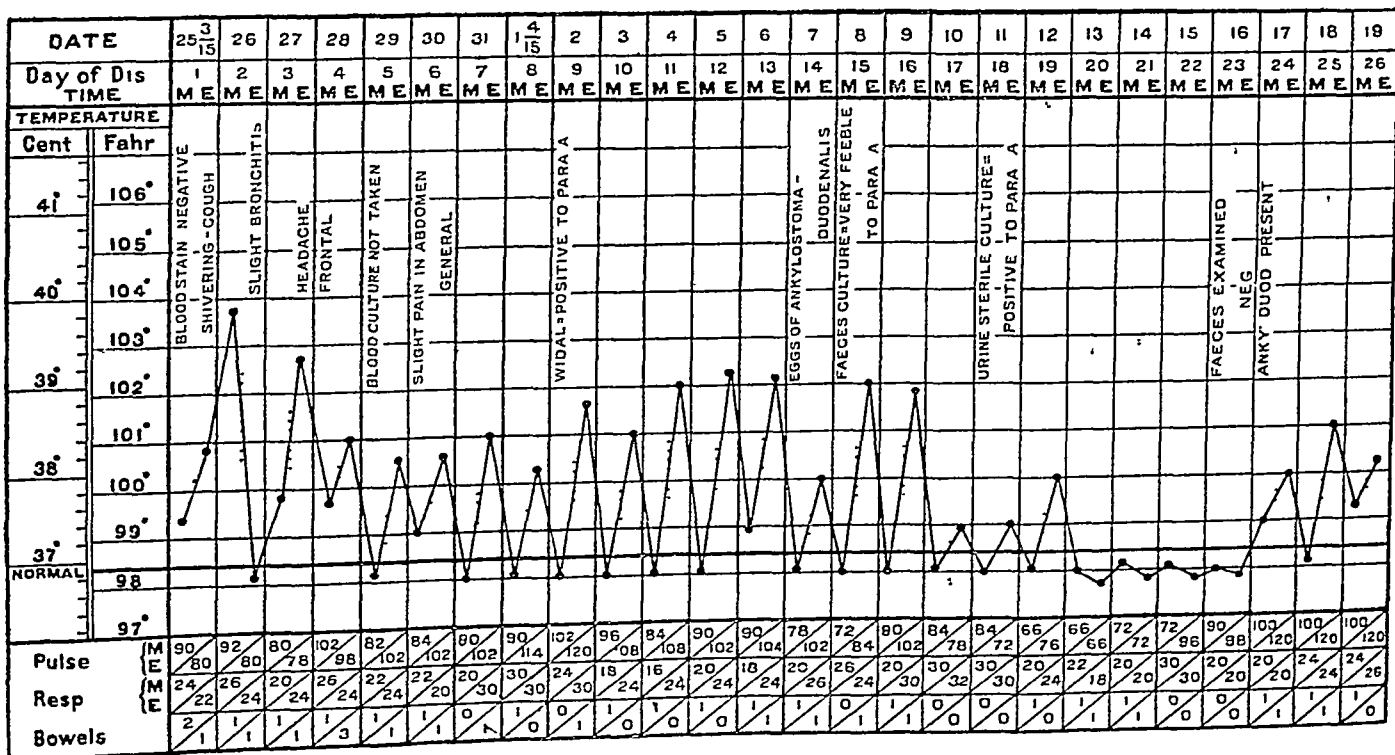
By LIEUT. M L TRESTON, i m s

CHART III



No 3362 R G, 2/4 G R F F Age 20 Para-Typhoid No Relapse Recovery

CHART IV

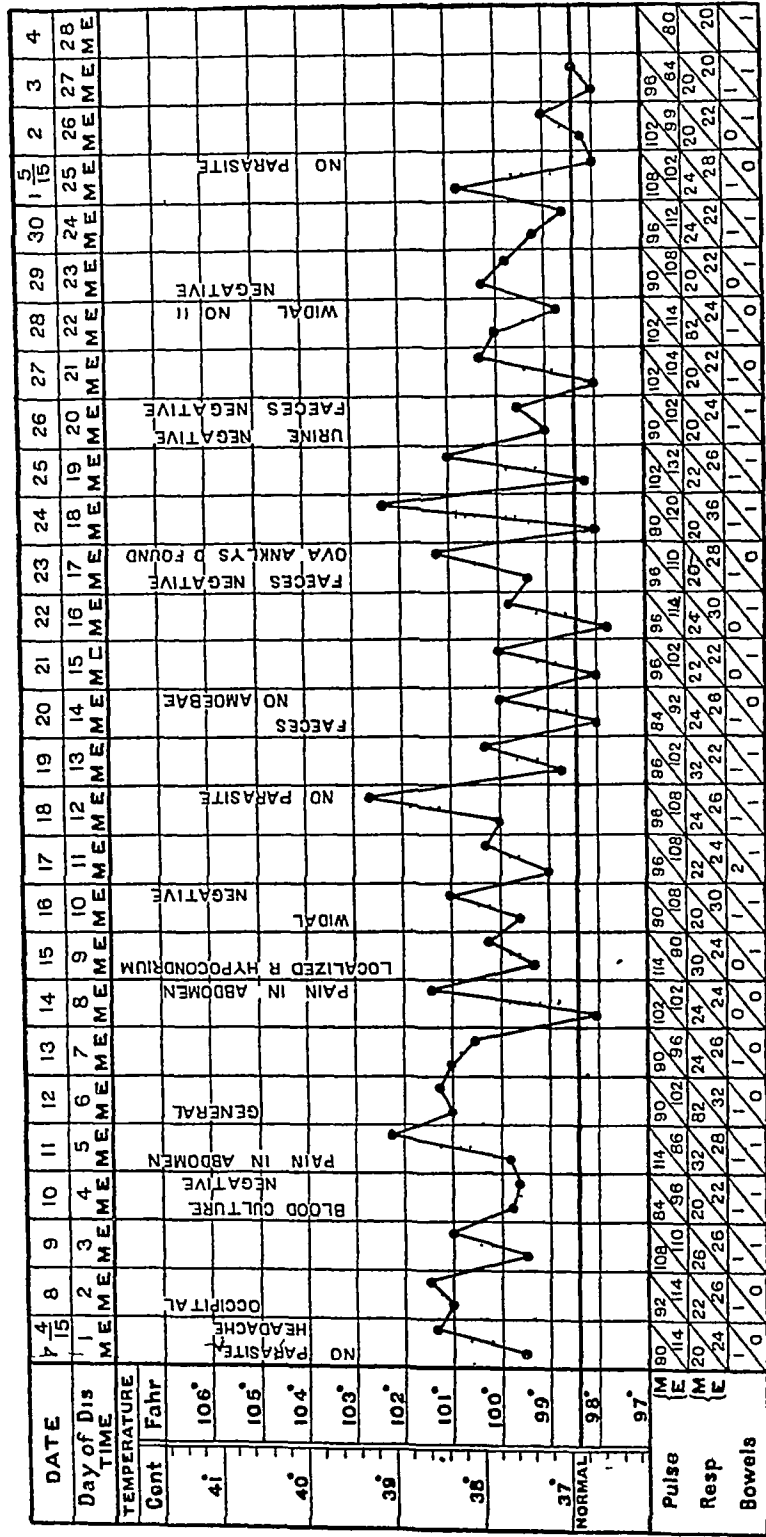


No 3437 P L, 2/4 Guikha Rifles Age 17 Para Typhoid A Relapse Recovery

SOME CASES OF TYPHOID AND PARA TYPHOID

BY LIEUT M L IRESON, I.M.S

CHART V



from the shelving portion of Poupert's ligament, and the round ligament is easily found as it emerges from the internal abdominal ring, with a minimum of disturbance of the fibres of the internal oblique muscle, and recognised by its bluish pink colour. Having isolated the ligament from the fibrous tissue surrounding it, it is pulled out as far as it will come, without using too much force. This is a modification of Alexander's operation which I think worthy of attention. It is that of Cocher. In Alexander's operation, as usually described, the round ligament is sought for at the external abdominal ring. At that point it is not always easily found and indeed might be missed altogether, and moreover, the internal oblique muscle has to be incised to an undue extent in cases in which there is difficulty in finding the ligament. The opposite side is then treated similarly. Having ascertained that the pull on the uterus is equal on both sides, the operation is completed by suturing the external oblique tendons by interrupted silk sutures, using moderately fine silk, and passing each suture through the upper half of the round ligament. Before passing the first suture the round ligament is made as taut as is desired. There is at this stage about two to three inches or more of spare round ligament, this decreases somewhat as the sutures are carried towards the external abdominal ring, and what remains there is buried in the tissues, no part of it is excised. The skin incision is closed by a few large silkworm gut sutures including skin and subcutaneous tissues down to the bottom of the wound, and the edges of the skin are accurately apposed by a number of fine interrupted horse-hair sutures.

5 For some days before, and on the morning of the operation, the vagina is irrigated twice daily with perchloride of mercury solution 1 in 8000. The evening before the operation the abdomen is shaved and sterilized by washing with soap and water, and applications of turpentine and spirit and finally iodine solution. A dry sterilized dressing is applied and not removed till the time of operation. On the operation table the dressing is removed and the skin again painted with iodine solution. Throughout the operation no antiseptic is used, but sterile saline solution, either normal or hypertonic is freely used. I sterilize my own hands with soap and running water from a tap provided with a terminal rose, then with biniodide of mercury lotion, and finally with saline solution. I rarely use gloves. The results are all that could be desired from the point of view of asepsis. The mortality should be nil. I use chloroform to produce anaesthesia and keep up its effects by A C E mixture. In cases where there is marked endo-metritis the uterus is curetted immediately before the operation, the mal-position

of the uterus corrected and vagina plugged with sterile gauze. Should the perinaeum be ruptured, this should be repaired by a previous or subsequent operation, and very relaxed vaginal walls should also be operated on.

6 In judging of the value of an operation for the cure of retroversion and prolapse of the uterus, it should be borne in mind that the uterus is a movable organ, and that it is held poised in its natural position in the inlet of the pelvis by elastic ligaments which admit of its mobility. Any operation which tends to unduly fix the organ is not desirable. In this respect, in my opinion, Alexander's operation is preferable to the "Sling" operation. The round ligament consists largely of fibrous tissue, but there is a proportion of muscular fibres which it receives from the uterus. These fibres are no doubt capable of contraction under certain stimuli and add to the strength and elasticity of the ligament. The ligaments taper towards their distal extremities where they become lost by blending with the surrounding tissues at the external abdominal ring. Their terminal ends which are their weakest portions are used up in Alexander's operation, and thus the ligaments after shortening must be stronger than before. In the "Sling" operation the proximal portions of the ligaments are used up, and the ligaments are left as weak as they were before the operation although shorter, and moreover the parts where the muscular fibres are most abundant are put out of action. They must therefore remain more rigid and less contractile than before.

A SECOND CAESARIAN SECTION

By E J MURPHY,

Civil Surgeon, Burma.

SECOND Caesarian section within two years. Recovery. Hindu female, *æt* about 23 years, of poor physique, 5 para. First child born six years ago, immature, no difficulty in labour, second child born four years ago, slight difficulty in labour, third child born three years ago, abortion of 2½ months, fourth, full term. Removed by Caesarian section in January, 1913, fifth, full term. Removed by Caesarian section in January, 1915.

MEASUREMENTS

| | <i>Present case</i> | <i>Normal</i> |
|--------------------------|---------------------|---------------|
| Internal Anteroposterior | 21½ | 34 |
| Transverse | 13½ | 4½ |
| External Interspinous | 8 | 10½ |
| Intercrural | 9 | 11½ |
| Ex Conjugate | 7 | 8 |

Present Condition — Patient had been in labour practically one whole night before she was

brought to hospital. On admission pains were satisfactory, but not much progress of the presenting parts. The membranes have ruptured, and the presentation made out to be a breech. Fœtal heart sounds heard. These were however feeble. Patient was becoming exhausted. There was little if any hope of the child being born viable with the aid of forceps. So a Cæsarean section was decided on. The parents were anxious that a viable child should be born. There was also the fear of the uterus rupturing if that organ was allowed to continue its fruitless endeavours to expel its contents.

Operation—On account of the previous Cæsarian section of 1913 the usual median incision was not made. The placenta being located more to the left of the median line, it was decided to make the incision about $\frac{3}{4}$ of an inch to the right of the median.

On opening into the abdomen a number of adhesions were encountered. The peritonæum was opened and the uterus exposed. One of the assistants was entrusted with the control of hæmorrhage by firmly grasping the lower segment of the uterus with his hands. The usual incision was made into the uterus, the child extracted as soon as possible, the cord tied, and the infant made over to the nurse (for artificial respiration if found necessary). The placenta was then detached as quickly as possible.

The uterus would not, however, contract soundly. So I was faced with the additional danger of profuse hæmorrhage. My assistant, too, at this time complained of the strain on him in his endeavours to control the lower segment. Enveloping the organ in towels wrung out of practically boiling water and powerfully kneading the whole organ with my two hands, the uterus did contract to a stage sufficient to warrant my relaxing the pressure on it to a great degree. A hypodermic injection of ergotin was in the meantime administered. The uterus was now stitched up and steps taken to remove both ovaries. These had not been removed in 1913. The peritoneal and abdominal cavities were now closed. The most distressing and immediately dangerous complication in this case was the extreme and persistent abdominal distension. For two days despite all standard treatment such as passage of the rectal tube, washing out of the stomach, I could get no flatus to move and as the patient's heart was weak there was every fear of the case proving fatal through pressure on the heart. It was decided to administer large doses of Olive oil internally, as well as give big enemata of the same. Under this treatment the distension soon subsided. The patient made a protracted recovery. Considering the normal poor physique and the circumstances of the case, this is not to be wondered at. The child died of inanition about a fortnight after its birth.

I wish to express my grateful thanks to the Sisters and Nurses of the Mandalay General Hospital for their devoted nursing of this case. Without their unstinted care and attention to details the patient's life may have been lost.

I unhesitatingly say that a great deal of the credit for the happy result attained in this case belongs to Dis. Rao and Pillai. Their skilled assistance during this formidable operation on an already exhausted patient of poor physique was my great stand-by.

A METHOD OF TREATMENT OF HÆMORRHAGE FROM THE LATERAL SINUS

By SATYARANJAN SEN, M.B.,

Assistant Surgeon, Berhampore

THE following is the short history of an interesting case of hæmorrhage from the lateral sinus treated successfully by Major Clayton Lane in the Berhampore Hospital.

Shib Chandra, Hindu male, aged about 22, was admitted into the hospital on the 21st May 1913 for the treatment of mastoid abscess.

Previous history—The patient and his relatives were preparing some *guri* (treacle) and accidentally dropped some of the boiling stuff inside the ear about a month before his admission, and scalded it badly. He had violent inflammation accompanied with great pain and profuse discharge from the ear. The pain and the discharge went on increasing till he was obliged to seek admission into the hospital.

Condition and admission—The patient was a well-nourished young man.

LOCAL CONDITION

Subjective—Intense pain inside his ear and difficulty in chewing.

Objective—There was a good deal of discharge from the ear, the meatus was ulcerated and tympanum absent and middle ear full of granulation tissue, externally there was redness, œdema and great tenderness over the mastoid, but no fluctuation could be felt.

Operation—The operation was performed on the 21st, as the patient wavered as to whether he should agree to it or not. The incision was usual half an inch behind the ear. The mastoid was found to be necrosed and softened. It was scraped and gouged. The antrum exposed and scraped. During the process of removing all necrosed bone the lateral sinus was exposed, but

its wall was intact, and there was no hæmorrhage from it. The wound was then plugged and dressed as usual.

Progress—The plug was removed after 48 hours, and the ear gently syringed, and there were no complications till the 25th, *i.e.*, the 5th day of the operation, when he had a sharp rigor and had slight pharyngitis.

Hæmorrhage—On the 26th, *i.e.*, the 6th day of the operation the patient had a fit of coughing at about 1 P.M. in the noon, and immediately his dressings were found soaked with blood. He was instantly put on the table and inspected. The lateral sinus was found to be eroded. The opening was of the size of goose quill and blood was welling out of it. It was plugged and a firm mastoid bandage put on.

Next morning his dressings were again soaked. The patient was put under chloroform and the plug removed. Blood came out in a gush and was temporarily controlled by means of gauze pressure. The opening in the sinus was high up, so that a ligature could not be passed above it without enlarging the wound in the bone and entering the cranial cavity. On the other hand, a slight pressure was sufficient to stop the bleeding. It was obvious that gauze pressure on the sinus meant that any clot which formed would be disturbed at the daily dressings with risk of hæmorrhage and pulmonary embolism. The writer suggested that the difficulty might be averted if a bit of living tissue could be plugged and kept *in situ*. So an incision was made into the fibres of the sterno-mastoid—exposed by the previous incision during the mastoid operation—parallel to the original incision, and a bit of muscle about half an inch wide was dissected off from the bone and its lower end cut. Thus a flap of muscle was made still attached to the upper part retaining its blood supply and vitality. It could be moved freely being hinged at the upper part. This was plugged over the sinus and stitched with catgut—the whole thing being kept in position by means of some gauze covered with oil silk and the wound dressed.

Progress and after treatment—The dressings were left untouched during the next 48 hours, the patient being kept under the influence of morphia.

On carefully opening the dressings on the 29th, the muscle plug was found to be in position and adherent to the surrounding parts. Fresh dressings were put in the same way. The patient was then dressed every other day but no washings were done the wound being gently mopped out. After a few days it began to granulate so much so that on the 9th June granulations almost reached the surface.

The patient was discharged cured on the 27th June.

INTERESTING CASES

By LAWRENCE FINK, M.B.,

Civil Surgeon, Burma

On the 18th December I was summoned to the jail in the early morning to investigate the sudden death of a prisoner, Maung Myat Tha, Burman, aged 43 years, who was admitted to jail on 25th May in apparently good health. His weight on admission was 111 lbs, height 5' 4", employment cane work, which is very light labour. On 18th August he was in hospital for slight fever and was discharged on 20th idem. He never complained of any pain in the chest or elsewhere. His weight in December (last weighing) was 123 lbs., *i.e.*, 12 lbs increase since admission. He was a well-made, sturdy-looking man. In the admission register here was a note that he had had syphilis, but how long ago was not stated. On the evening of the 17th December, he took his food and made no complaint of any illness or pain. At about 5-15 A.M. next day, before unlock, he went to the urinal, passed urine, walked back to his place in the dormitory and lay down. The convict night watchman accompanied him to the urinal and back. He says the man made no complaint of illness, walked quite steady and did not appear to be at all out of sorts. At 5-30 the dormitory was opened by one of the assistant jailors, and the convict night watchman, finding Myat Tha still lying down, tried to wake him, but discovered that he was dead. The *post-mortem* examination revealed the cause of death, which was due to hæmorrhage into the pericardial sac. There was a large red clot, nearly $\frac{1}{2}$ inch thick, almost completely covering the entire heart, and some blood stained serous effusion. The source of the hæmorrhage was traced to a minute opening in the aorta, about $\frac{1}{4}$ inch above the aortic valves. The first part of the aorta was much dilated and there were depressions just above the aortic opening, each admitting the tip of the index finger and two each about $\frac{1}{2}$ inch deep. These depressions were aneurysmal and due to gummatous degeneration which was found also in the intervening space. In one of these depressions there was a minute opening, admitting a very thin probe, and through this the blood had passed, probably very slowly, into the pericardium. The rupture in the wall of the aorta was so small that it was found with difficulty and was first noticed when water was seen to pass through it drop by drop. The hæmorrhage into the pericardium must have been very gradual and probably went on for hours while the man was asleep. There was no valvular disease.

This case contrasts with the preceding one in having been painless. The man 15 minutes before he was found dead, had walked unassisted to the urinal a distance of about 15 yards and

back, and had not complained of any pain, dyspnoea, or giddiness

"Live Moles"—Burmans speak of "live" moles and "dead" moles. By the former they mean moles that increase or decrease and by the latter moles that are permanent and neither increase nor decrease. The increase or decrease usually refers to size, but sometimes the term is also applied numerically. There is a case here with about 2,407 moles, in a Burman lad, aged 19 years, who has been in jail for the past three months. He states that he was informed by his parents that at birth he had a few moles on the chest, right side of sternum, and that these have steadily increased in number and some in size. They now extend upwards in his right supra-clavicular region, right side of neck and chin, and downwards along the front and inner side of his right upper arm, on the extensor and flexor surfaces of his right forearm and on the back of his right hand. The moles are cuticular pigmented spots, black in colour, and are not raised from the skin. They vary in size from a pin-point to a split-pea. A few new moles have appeared since his admission to jail and some have coalesced with each other on the chin. The condition appears to me to be rare. I am unable to explain the reason for the distribution of the moles on the right side of the body only, nor why they are increasing in the manner described. There are scarcely half a dozen on the left half of his body.

ABNORMAL LABOUR CASES

By D J ASANA,

Civil Hospital, Sadra

THE following two cases of Abnormal Labour (relieved by instrumental delivery), preventing the advance of the head of the foetus during the second stage of labour due to cord encircling the neck of the foetus, are perhaps worthy of record, and moreover the rarity of these cases justifies their publication. Books at my disposal do not elucidate the cord as the cause of preventing the advance of the head of the foetus.

Case No 1—Mrs M, age about 45, multipara—fourth pregnancy, in pains for 24 hours. Pelvis normal, cervix dilated, membranes ruptured, vertex presentation, first position, powerful pains, no other disease or obstruction except head does not descend further.

In this condition she was for 24 hours, she was much exhausted, chloroform was given, and forceps were applied. With great difficulty the head was brought down. No sooner the head was brought down the cord was seen tightly stretched

round the neck pale with feeble pulsation. Immediately it was cut between two ligatures and child was delivered at once. Child was still-born, artificial respirations were given and it was saved.

Case No 2 *Exactly similar to the above described*—Healthy woman, age about 40, multipara—sixth pregnancy, quite healthy, pelvis roomy with normal diameters, powerful uterine contractions, cervix fully dilated, membranes ruptured, first position, no advance of the head.

In this condition she was for 48 hours, child was alive, woman was much exhausted, chloroform was given, forceps were applied, but head could not be delivered. Second trial was made but without any success. Caesarian section was out of question owing to the woman's condition being too much exhausted without food and sleep. Craniotomy was performed and crushed head was brought down with great difficulty. Same thing had happened as in first case, cord was seen tightly stretched encircling the neck preventing the head of the child descending. The cord was immediately cut between ligature and foetus was brought down at once. Length of cord was about 18 inches. In the former case it was about 2 feet. The diameters of the foetal head appeared to be normal. No exact measurements were taken, but to all appearance they appeared normal.

Remarks—I venture to think that in these two cases cord encircling the neck being somewhat short prevented flexion and hence the difficulty arose. If the cord would have been abnormally long, I think the child would have been born naturally. For future diagnoses it will be fair to assume the cause of delay in advance of the head to be the cord encircling the neck, if the diameters of the pelvis are normal with powerful uterine contractions, and no other definite obstructions in the maternal passages, which can be learnt from previous history, with no other abnormality in case of foetus.

Treatment—First I would recommend forceps if forceps failed as it did in the second case, and if the head can be pushed up and all liquor amnii not escaped, I would try to feel the cord round the neck and if possible remove from the neck and try again forceps, still if they failed I would try internal version, and if that failed, Caesarian section, if conditions permit, or finally the craniotomy.

What causes the cord to encircle the neck I do not know. Possibly it might be taking place during the earlier months of pregnancy owing to the early movements of the foetus. I would like to read in your *Gazette* the opinions of the medical officers in charge of maternity institutions about such cases.

Indian Medical Gazette.

SEPTEMBER

BOMBAY PORT HEALTH REGULATIONS

AMENDMENTS TO RULES UNDER NATIVE PASSENGER SHIPS ACT

IN the *Bombay Government Gazette* of July 15th there appears a new set of Port Health Rules dealing with infectious diseases. The most important are those dealing with the precautions to be adopted against Yellow Fever and the measures to be taken in case of the arrival of ships from infected ports. However, it is needless to comment on them at present as they still require to be supplemented by the local regulations which the Local Government is empowered to draw up under Section 2. Presumably these are still under consideration just as they are in Bengal.

In the same *Gazette* appears a republication of a Notification No. 5539 of the Government of India, Department of Industry and Commerce, embodying draft rules amending the existing rules under the Native Passenger Ships Act of 1887. Suggestions or objections may be lodged prior to 10th August 1915. Several of the matters dealt with appear to require a good deal of reconsideration. One outstanding defect of the new draft rule II is that the carrying of a Surgeon is left entirely optional, whether the ship be engaged on a long voyage or a short one and whether she be a first class passenger ship or not, or rather "One licensed for 20 saloon and 800 other passengers" or not. According to the rule there seems nothing to prevent a modern large ship such as those that sail for the Far East with large numbers of passengers dispensing with a Surgeon, and if she does so she is only bound to carry medical requirements according to "Schedule B." "Schedule B" is suitable for a tramp steamer but is quite unsuited for a passenger steamer. Even "Schedule A" the requirements for a ship carrying a Surgeon, is very deficient. It seems to be identical with the old scale for Pilgrim Ships and omits no less than 63 items of drugs which are provided in scale II for English Emigrant Ships other than those in the North

Atlantic Trade. Such ordinary drugs are omitted as amyl nitrate, bismuth, collodion, cascara, belladonna, potassium iodide, emetine, etc. No medical comforts are provided at all, though they are in "Schedule B." The supply of instruments is practically limited to a pocket case, there is no tracheotomy set, no amputation set, nor even a tourniquet. There is not provided even a hypodermic syringe, still less the tablets for it. However it is pleasing to note that proper provision has been made for a surgery, of 8 ft x 6 ft, and for periodical inspection of medical stores.

It may be said that although there is no provision in the rules for the compulsory carrying of a doctor, provision is made in the Act itself. Section 26 is as follows: "A ship carrying more than 100 passengers from or to any port in the Red Sea shall have on board a medical officer licensed in accordance with the rules under the Act." In the first place, we may note, that the application of this section is strictly limited to Red Sea Ports and in the second place it is nullified by the complete absence, in the rules, of any mention of any procedure of licensing medical officers. Another complication is added by the fact, that English legislation, which is supposed to be the basis and model of Indian legislation, definitely lays down the conditions under which the carrying of a doctor is compulsory. Section 209 (1) of the Merchant Shipping Act of 1894 runs as follows:—"Every Foreign-going ship having 100 persons or upwards on board shall carry on board as part of her complement some duly qualified medical practitioner, and if she does not the owner shall for every voyage of the ship made without a duly qualified medical practitioner be liable to a fine not exceeding £100." It is difficult for a layman to grasp why some corresponding provision is not added to the rules under the Indian Act.

Rule IV (1) deals with the scale and construction of privies. It seems that there must be some clerical mistake here as the provision made is utterly inadequate. "Every ship shall be fitted with privy accommodation of at least 3 latrines and 2 urinals, with an additional latrine for every 100 passengers or fraction thereof, carried in

excess of the first 100.' A modern passenger ship carries a crew of about 100, let us suppose that she has 200 passengers then according to the rule she requires to be fitted with 3 latrines plus 1=4 latrines for 300 people. As there is no definition of latrine, one seat can be taken as latrine. But the rate for julkims is three seats per 100, the same as the rate for warships. For seamen the Board of Trade require two privies or closets for every 20. The Merchant Shipping Act requires two privies and two additional privies on deck for every 100 passengers.

In view of the facts stated above it is difficult to avoid the conclusion that a distinct case has been made out for collation of the various Acts mentioned and for amendment of the draft rules based on them.

Current Topics

RESEARCHES ON SPRUE IN CEYLON

UNDER the auspices of the London School of Tropical Medicine Dr P H Bahr has published * a valuable and laborious attempt to unravel the etiology of one of the most insidious diseases known to Tropical Medicine.

The Report, though not conclusive, is a most valuable one, and below we quote Dr Bahr's summary of the work done. The Report consists of 155 pages in 21 chapters and deals in a very complete manner with the subject. The disease is considered in its many aspects, etiology, distribution, liability, racial and personal. Symptoms as met with in Ceylon, complete and incomplete sprue, clinical pathology, a yeast infection, a blastomycotic infection, treatment and differential diagnosis. There are also 16 useful appendices to the Report.

Chapter V is an all too short page on hill diarrhoea—a subject of very considerable importance in India—which since the work of Crombie many years ago has been too much neglected. Hill diarrhoea is often only "chill" diarrhoea and in the present year we have known of several cases in young men just arrived at a hill station, where the energy due to a cool climate has led to an excess of violent exercise before they were what may be called acclimatised with the result—a diarrhoea which is not easily shaken off.

It is to be hoped that when the war is over special attention will be devoted to this ever-

present complaint. Its bearing on sprue or upon what in India ends in a condition closely allied to sprue is well worthy of investigation by special officers.

Meantime while commending Dr Bahr's pamphlet to our readers we attach his conclusions in his own words—

(1) Yeast cells and mycelial elements are found situated intracellularly in scrapings of the tongue lesions at an early stage of the disease and cannot be found in scrapings made from the former site of the lesion at a later stage when symptoms have subsided.

(2) Yeasts are the only organisms found in the deeper layers of the tongue in microscopical sections. The evidence that the infection is not of recent date receives support from the chronic inflammatory changes in the epidermis and the corium of the papillæ and from the presence of Russell's bodies in this situation.

(3) The desquamation of the epithelial cells accompanied by a subacute inflammation of the tongue and of the oesophagus are changes such as would be expected from a study of the mode of growth of the fungus and of its low order of virulence.

(4) A general infection of the intestinal mucus with yeasts was found in sprue *post mortem* but no such general infection was found in other chronic wasting diarrhoeas.

(5) The stools of sprue, their frothy and gaseous character, are such as one would expect in a blastomycotic infection of the intestinal canal.

(6) The relapsing nature, the chronicity and latency of the disease are symptoms such as one would expect from a knowledge of the life history of the blastomyces, their periods of attenuated growth and of sudden recrudescences.

(7) There is no evidence in favour of regarding the sprue yeast fungus as being otherwise than identical with the thrush fungus *Monilia albicans*, an organism possessing a very low pathogenic power, but it is possible that under certain unknown conditions, more or less peculiar to the tropics, this power may become greatly augmented. In support of this view I may add that it is a well recognised fact that there are endless varieties of yeasts employed in the brewing of beer and in making wine, and that the predominance of a variety in certain districts imparts to the local wine its characteristic flavour, and which, though differing widely from each other in their powers of growth and fermentation, yet resemble each other minutely in their morphological and cultural characters. May it not be that the pathogenic yeasts can be similarly altered by local conditions? I surmise that under certain circumstances these fungi, though normally non-pathogenic, are capable of assuming a pathogenic rôle, as is known to happen in the case of the *pneumococcus*, the diphtheria bacillus, the *Micrococcus catarrhalis*, and probably in the case of the *Entamoeba histolytica* as well.

That the thrush fungus is capable of causing a desquamation of the epidermis of the lingual papillæ there can be little doubt in sections stained by Giemsa the epithelial cells in the immediate vicinity are vacuolated and in some places completely destroyed, thus laying bare the subjacent connective tissue there is an intense inflammatory change in the immediate vicinity the nuclei of the epithelial cells have undergone chromatolysis the epithelial layer itself is crowded with polymorphonuclear cells not usually found in this situation the capillaries of the corium are dilated and filled with leucocytes—all evidences of a reaction on the part of the tissues invaded by the fungus. Of one thing there can be little doubt, namely that this infection is not the result of a *post mortem* in-growth.

* Camb Univ Press, price 7s 6d net

Exactly the same changes are visible in the oesophagus where there are also collections of inflammatory cells in the subjacent mucous and aveolar coats.

There can be little doubt, as a result of my studies, that these fungi in their downward growth are capable of exposing the taste buds and nerve terminals and of causing the very lesions, which the lingual and oesophageal symptoms of sprue suggest are present.

(8) Wasting and anaemia, both symptoms of sprue, can be produced in rabbits by continuous intravenous injections of small doses of a bioth culture of such a pathogenic yeast, moreover a degeneration of the capillary endothelial cells of the liver, apparently similar to the degeneration found in the sprue spleen, may be produced in these animals by the same means.

(9) Diarrhoea, atrophy of the lingual papilla (as in sprue), digestive disturbances and aphthous ulceration of the mouth are commonly found in infants, the subjects of a thrush infection in temperate zones.

(10) It is possible that obscure alimentary diseases of children in temperate zones, such as Gee's coeliac diarrhoea¹, are of the same nature as sprue in adults in the tropics. A hypothesis of this sort would explain the occurrence of sporadic cases of sprue in temperate zones.

(11) The local affection of different portions of the digestive tract with this fungus would best explain the varying clinical manifestations of sprue.

(12) To maintain such a hypothesis, it is necessary to stipulate for a third factor, a predisposing cause, which may exist in local tropical climatic conditions which favour a more precocious and luxuriant growth of all the fungi, a matter of common observation to all laboratory workers in the tropics.

Evidence against regarding sprue as a blastomycotic infection.

(1) Thrush (*Monilia albicans*) is a terminal, though uncommon, infection in other chronic wasting diseases such as phthisis, cancer, diabetes, etc.

(2) General infections of the alimentary canal with this fungus have been reported in temperate zones.

(3) If the geographical distribution of sprue eventually found to correspond with that of other typically tropical diseases, such a fact alone is in favour of a protozoal rather than a fungoid or bacterial origin of the disease.

NOTIFICATION UNDER THE BENGAL MEDICAL ACT, 1914

"No 1565 Med—The 3rd August, 1915—In exercise of the power conferred by the proviso to sub-section (3) of section 1 of the Bengal Medical Act, 1914 (Bengal Act VI of 1914), the Governor in Council is pleased to appoint the 1st January, 1916, as the date on and from which sections 29, 30 and 31 of the said Act, which are reproduced below, shall come into force—

29 If any person whose name is not entered in the register of registered practitioners falsely pretends that it is so entered, or uses in connection with his name or

Penalty on unregistered person representing that he is registered

¹ Gee's coeliac diarrhoea, first described in 1868, is a chronic wasting disorder of childhood, characterised by diarrhoea, by large pale, fermenting and offensive stools, running a prolonged course with tendency to relapse which may end in death or in complete recovery, or in partial recovery with consequent impairment of growth, and of development. The disease generally commences in the second or third year of life, and is accompanied by anaemia, oedema of the extremities, great emaciation and abdominal distention. Little is known about the pathology, there is said to be an atrophy of the intestinal canal. Several theories have been advanced implicating the activity of organs such as the liver and the

title any words or letters representing that his name is so entered, he shall, whether any person is actually deceived by such representation or not, be punishable, or conviction by a Presidency Magistrate or a Magistrate of the first class, with fine which may extend to three hundred rupees.

30 The expression "legally qualified medical practitioner," or "duly qualified medical practitioner," and all other expressions importing a person recognised by law as a medical practitioner or a member of the medical profession, as used in any Bengal Act or any Act of the Governor-General of India in Council in force in Bengal, shall be deemed to mean a medical practitioner registered under the Medical Acts or this Act, and

no certificate required to be given by any medical practitioner or medical officer under any Bengal Act or any Act of the Governor-General of India in Council in force in Bengal shall be valid unless such practitioner or officer is registered under the Medical Acts or this Act.

31 Except with the special sanction of the Local Government, no person other than a registered practitioner shall be competent to hold any appointment as medical officer of health, or as physician, surgeon or other medical officer in any hospital, asylum, infirmary, dispensary or lying-in hospital, which is supported partially or entirely by public or local funds."

It has been decided by the Bengal Medical Council that it is desirable that all medical men already qualified by registration in the United Kingdom should, if they practice in Bengal, be also registered by the Bengal Medical Council.

AMOEBAE AND DYSENTERY

THE Liverpool School of Tropical Medicine has republished a collection of valuable papers on amoebae and the dysenteries of the Canal Zone, viz, a study of the entamoebae of man in the Panama Canal Zone by Dr W M James and two papers on the dysenteries of the Canal Zone and on emetine by Dr W E Deeks. The first paper by Dr James is a very complete study of the literature, the morphology and the classification of the entamoebae of man—it is beautifully illustrated with coloured plates and has a full bibliography.

The paper by Dr Deeks, of the Ancon hospital, Panama, is very full and complete. We quote the following extracts—

In a short paper on emetine Dr Deeks reports that he believes that the results of the use of emetine "are incomparably superior to those by any other method, not only from the standpoint of immediate results but also on the prevention of relapses and metastatic abscesses."

In one case where though the amoebae disappeared under emetine there remained four or five evacuations daily Dr Deeks went back to his favourite bismuth "in teaspoonful doses three times daily" which had a prompt and good result.

He thinks that bismuth acted by "destroying the symbiotic organisms necessary for the growth of amœbæ in the intestinal canal."

The following forms of dysentery are more or less frequently met with in Ancon hospital, and for the most part can be readily differentiated—

(1) Amœbic dysentery caused by the *Entamœba tetragena* of Viereck, or the *Entamœba histolytica* of Schaudinn. These terms Dr W M James, of this hospital, has proved represent one and the same organism. The former represents the quiet cyst-producing stage, the other, or *histolytica*, the acute vegetative stage. The consensus of opinion at present is that *E. histolytica* is the proper name for the pathogenic species.

(2) Bacillary dysentery caused by Shiga's or Flexner's bacillus, and the allied varieties.

(3) Bilharzia dysentery caused by the *Schistosoma mansoni*.

(4) Balantidium dysentery caused by the *Balantidium coli*.

(5) Malarial dysentery in the course of a general malarial infection.

(6) Tubercular dysentery due to tubercular ulceration of the intestine.

(7) Nephritic dysentery or dysentery associated with acute diffuse nephritis, or secondary to a chronic nephritis with an acute process superadded.

(8) Diphtheric dysentery or colitis, associated with a diphtheric or gangrenous inflammation of the mucous membrane, of the whole colon, rectum, and part of the adjacent small intestine—a very fatal form.

(9) Dysentery in the course of Pellagra.

(10) Dysentery resulting from the ingestion of decomposing meats or fish.

(11) Dysentery resulting from the ingestion of infected milk. These (10 and 11) may be bacillary in character.

(12) Dysentery, secondary to cardiac or hepatic disease.

(13) Dysentery associated with typhoid ulceration of the bowel.

(14) Clinical dysentery, which comprises the greatest number of cases and embraces that large group, of undetermined etiology, which occur here usually about May, in large numbers—about the close of the dry and the beginning of the rainy season. No microscopical or cultural findings have enabled us to determine their ætiological factor. They, however, are not very severe, lasting usually from four to ten days, and requiring no specific treatment. If, however, any of these dysenteries be associated with *Entamœba coli*, to the uninitiated they are grouped as amœbic dysentery and hence give rise to mistaken statistics.

A variety of methods have been tried in this hospital with varying success. They resolve themselves into oral medications and local treatment in the form of irrigations. Among the former may be mentioned castor oil, magnesium sulphate, opiates, ipecac, and bismuth and opium. Among the latter quinine irrigations in varying strengths, but usually 1 to 500, thymol irrigations 1 in 2,000 or 3,000 combinations of both, silver nitrate $\frac{1}{4}$ per cent boric acid, starch and laudanum, tannic acid, copper sulphate, normal salt and plain water, warm and cold.

Of all the different methods used, one stands out pre-eminently, that is, bismuth by the mouth and simple irrigations, either normal saline or plain water per rectum. The method is simple, harmless, and physiological and as our statistics show, more than justifiable. Absolute rest is enjoined, and absolute milk diet of which there should be an abundance, saline or water irrigations and bismuth sub-nitrate in heroic doses. We do not object at the beginning, if tenesmus and

distress be very severe to an occasional hypodermic of morphine and atropine, but as a routine measure it is not considered good treatment.

This method of treatment was begun in 1908, and the uniformly satisfactory results were such that it remains to-day our standard method. Of the last 68 cases treated in this manner, extending over a period of thirty months, we have not lost an uncomplicated case. Further of 190 cases treated by this method, we have had only three traceable relapses and one liver abscess.

First—Rest, in order to increase the patient's resistance and give the minimum of movement to the bowel. This is classical treatment in all acute infections.

Second—A generous milk diet, because it is a physiological nutritious diet, admits of a minimum of intestinal putrefaction, and is practically all absorbed before it reaches the large bowel, which, owing to its ulcerative condition, is more or less physiologically inert.

Third—Saline or plain water irrigations one to three daily, purely for the purpose of lavage in order to rid the bowel of toxic products.

Fourth—The administration of bismuth sub-nitrate in heroic dosage. We give a heaped teaspoonful, equivalent to about 180 grains by weight, mechanically suspended in almost a tumbler of plain or better effervescent water, every three hours, night and day in severe cases, only lessening the amount when improvement takes place. The mechanical suspension in a large amount of water is essential, otherwise it is prone to form a paste or solid mass, thus lessening its physiological effect. When the stools begin to lessen in number, and the tongue becomes clean, the number of doses is lessened to three or four daily. In very chronic cases it is wise to continue one or two doses daily for a month after convalescence is established. The absolute milk diet is not departed from until the tongue cleans, the tenderness over the bowels disappears, the elasticity of the skin returns to normal, and the stools have been reduced to one in 24-48 hours, then a normal diet may be gradually resumed as in convalescence from typhoid. We do not object to, but recommend, plain fruit juice once or twice a day instead of the milk during the acute attack.

How does bismuth sub-nitrate act? In 1883, Theodor Kocher demonstrated that the insoluble preparations of bismuth were actively antiseptic to fermentative and putrefactive bacteria. It is further known, clinically, that on the mucous membrane of the intestine, bismuth has a local sedative and astringent action. In our former paper we suggested that the curative power of bismuth sub-nitrate in amœbic dysentery rested largely on its antiseptic properties to the symbiotic putrefactive or fermentative bacteria.

Summary

(a) Amœbic dysentery is due to a specific organism the *Entamœba histolytica* (tetragena) probably water-borne and symbiotic in character.

(b) There is no endemic centre.

(c) Immunity, as we understand it, does not exist.

(d) Age, locality, nationality, or occupation, play no rôle in the ætiology.

(e) The pathological lesions are peculiar and characteristic.

(f) Amœbicidal irrigations are useless.

(g) The bismuth-milk-saline method of treatment gives in almost all cases, splendid results, if the lines indicated above for their administration are adhered to.

(h) Occasionally in extreme cases surgical interference, after Dr A B Herrick's method, is indicated.

(i) This method of treatment gives a maximum of cures with a minimum of recurrences and metastatic developments, the most frequent of which is liver abscess. This offers a serious complication in the treatment, particularly if of the acute or fulminating type.

From the foregoing conditions, it can be concluded that the subject of dysenteries is a large one, and much yet remains to be learned both as to etiology and treatment. In Ancon hospital more attention has been directed to the amoebic type than the others, and we feel now, as far as *Entamoeba histolytica* (tetragena) is concerned, that its pathology is characteristic, and its treatment established. The exact mode of action of the treatment is still a subject for discussion, but the results are practically perfect.

The frequent occurrence of *Entamoeba coli*, which is harmless, undoubtedly is responsible for the discrepancy in results which have followed this or any method of treatment of amoebic dysentery. Many a patient has been submitted to disagreeable, tedious, and oft-times painful methods of treatment because of the failure first to diagnose the type of dysentery.

It must further be realized that dysentery is only a symptom, and not a pathological entity, and no single method of treatment is applicable to all varieties.

The great majority of the dysenteries met with here will improve, after the administration of a purgative, on rest in bed and milk diet, no specific being necessary. It is to be sincerely hoped that in the near future we shall have some more definite scientific data on which to base our classification than clinical observations, but the practitioner in tropical medicine has no other alternative at present.

THE BOMBAY HEALTH REPORT

THIS is a wonderfully complete and elaborate report, indeed it is so full of matter worth reproducing that it becomes difficult to choose. We, however, at page 75 of the report, come upon a summary or review of the progress made in the years 1901—1915 which may well be republished. It shows the enormous amount of good work done and the difficulties overcome and those which still remain to be overcome.

The rest of the report deals with numerous subjects of considerable interest, viz, Arthur Road Hospital report (including a useful note on the treatment of cholera by subcutaneous and rectal salines), the Maratha Hospital report (where Dr Choksy shows that the iodine treatment of plague is of no special value as regards results), the Malaria Operations report which is full of information and figures and includes a detailed criticism of Dr Bentley's 1911 report. The report of the analytical and bacteriological department is very complete and the notes on milk supply deserve a more full notice than can be here given.

The whole report is a fine record of good work done, and it is satisfactory to know that Dr J A Turner is to remain on as Executive Health Officer. The premature retirement of such an officer would be a calamity to Bombay. The summary of progress referred to above is as follows—

Progress Reviewed (1901—1914)

Progress has been made under the following headings—

Registration of Births and Deaths is much better but is still defective.

Dispensaries have done well but require proper accommodation.

Plague, Small-pox, Malaria, Tuberculosis and other Infectious Diseases have been materially reduced.

Vaccination is now under the Health Department.

The measures for reducing Infant Mortality show some improvement.

Our proposal for adopting a system of School Medical Inspection was adopted and put in force for six months. Its importance cannot be overstated and the matter should be taken up without any delay as one of the most vital importance.

The Conservancy System of the City shows progress. The motor service has greatly facilitated the removal of refuse, but there is still room for improvement by the adoption of Incinerators and the improvement of the Drainage and Water Supply and increase in the supervision of the staff.

The Reclamation of the low-lying land at Clerk Road is proceeding.

The hospital accommodation for Infectious Diseases is insufficient and was the subject of many reports and proposals are before the Corporation.

The housing of the labour staff proceeds very slowly.

The improvement of the insanitary areas represented in 1903 makes very little progress. The operations of the City Improvement Trust have opened up many narrow over-crowded areas and made extensive improvements in many directions, but many insanitary areas still remain.

Progress has been made in the condition of the Milch Cattle and Horse Stables, but there is a great deal yet to be done.

The Eating Houses, Soda Water Factories, Bake-houses are slowly improving.

The work of demolishing houses "U H H" by the Municipality is practically nil.

The conversion of the old basket privies into WCs makes very slow progress. Thousands of insanitary gullies exist which are a nuisance and danger to health.

The condition of many of the sewers and house drains and storm-water drains has been reported on from time to time and, although being gradually improved, leaves much to be desired.

It has been frequently pointed out how the work of the Health Department of Bombay differs from that of a large City in Europe, how many and how difficult the problems are, and if we have made any progress it is to a great extent due to the guiding influence of the Municipal Commissioner and the general support of the Corporation combined with the constant supervision, the education of the people in the value of sanitary measures and to the harmonious working of the Department with the co-operation of the public.

The experience of the Deputy Health Officers in the Public Health Administration of a Ward, when they were first appointed, was not large and they have been pressed for more work, year by year, to which they have willingly responded.

There is still much room for improvement in many directions and, considering all the circumstances, the class of work done by the Deputy Health Officers now (with some exceptions) is certainly better.

In addition to the programme alluded to, many delicate and intricate duties have been placed upon them and they have done their best. In addition to the regular routine work of their Wards and the control of Infectious Disease, they have to supervise the Registration of Births and Deaths, enquire into the installation

of any trade process, the condition of Eating Houses, Soda Water Factories, and Bake-houses, Bullock and Horse Stables and Milch Cattle Stables, Malaria and Tuberculosis and Vaccination

If then work was onerous and responsible when they were appointed in 1907, it is doubly so now, with the ever-increasing demand for better sanitation and better supervision and the rapid development of the City, and calls for some consideration by the Commissioner and the Corporation

We have in the past had to contend with the outbreaks of Plague, Small-pox, and Cholera and the staff had always to be on the alert and ready for any emergency

Although Plague has *materially decreased*, we have always to take precautionary measures, and the Deputy Health Officers and District Registrars have to be ready to arrange for removal of cases and evacuation of houses and to supervise the Health Camps as in the past

On the introduction of Cholera from outside, the staff are told off to watch the Railway Stations and the Railway Companies are requested to co-operate and any suffering case is removed to Hospital from the train, the contacts segregated and the houses visited in spite of this, the disease gets through at times and all our efforts are required to combat it. Much has been written on the subject and we have successfully controlled many introductions of Cholera about which little has been heard

Small-pox declines to *nil* at times, but is re-introduced by pilgrims and Goanese, the majority of whom are unvaccinated. Vaccination of pilgrims leaving and returning to India was urged by us from 1904 and put in force in 1910 and our staff now vaccinate many thousands of pilgrims annually

The work of the Health Officer and his Assistants and staff is no sinecure and they must be ever on the alert and actually in touch with every case of Infectious Disease which occurs in Bombay, and some consideration should be given to the work done by the Deputy Health Officers and the District Registrars and staff which brings them daily in contact—in all conditions of climate—with all forms of Infectious Diseases

The supervision of the Conservancy work of a Ward, which is at present one of the duties of a Deputy Health Officer, is a very responsible and onerous task. A Deputy Health Officer who carries out successfully the duties of administering a large Ward should receive encouragement in the shape of increase of pay

The work at the Arthur Road Hospital and Maratha Hospital has been comparatively light, but Dr. Choksey is able to show a *reduced* incidence in the death-rate from Cholera and Plague in Hospital

The Municipal Laboratory has been very busy, and Dr. Joshi, the Municipal Analyst, shows again how the work is increasing

Dr. Shroff shows in his Report how the work of the Malaria Staff has succeeded in reducing Malaria in the City

Dr. Nankar, the Superintendent of Vaccination, has again carried out the work of the Vaccination Department very satisfactorily

The extra work thrown on the out-door staff due to the war, when thousands of troops, horses, foot, and artillery came into Bombay and were encamped in different parts for weeks and under very difficult conditions, was carried out willingly and with great success, and it is pleasing to record that great satisfaction was expressed by the Military Authorities at the result of the work and by the Corporation in granting a bonus to those immediately concerned

BENGAL ASYLUMS

THE triennial report sent in by Surgeon-General G. F. A. Harris, C.S.I., just before his retirement is a melancholy document, a record of an endeavour to fight against great odds in the treatment of lunatics in Bengal. The accommodation is totally inadequate, and year after year passed and nothing definite is done. Surgeon-General Harris puts a brave face upon it, but the facts remain that the European Asylum at Bhowanipore, in spite of many recent attempts to patch and improve it, is a byword in the Calcutta newspapers and the obsolete Central Asylum at Behrampore is no more fit to be an asylum than it is fit to be a Raja's palace and it was condemned as an Asylum 10 years ago. Yet year after year passes and nothing is done and plans approved by the Government of India and by Bengal are thrown aside owing to the territorial changes which have so disturbed continuity of work or policy in what used to be called the Lower Provinces.

The following note shows the shifts to which the Medical Department has been reduced to make room for the moiety of insanes in Bengal who are certified lunatics—

Accommodation—From an examination of the figures (quoted below) for the past few years for admissions and re-admissions on one hand and those for deaths and discharges on the other, it is clear that every year more lunatics are admitted than are released either by death or discharge. Thus there is every year a surplus which goes to swell the asylum population, and taxes the asylum accommodation of the Presidency seriously and complicates the problem of housing them

| | 1909 | 1910 | 1911 | 1912 | 1913 | 1914 |
|-----------------|------|------|------|------|------|------|
| Admissions and | | | | | | |
| Re-admissions | 227 | 243 | 249 | 265 | 213 | 195 |
| Deaths and Dis- | | | | | | |
| charges | 192 | 214 | 199 | 245 | 210 | 190 |

In the last year of the previous triennium the total accommodation available in the three lunatic asylums now in the Presidency was 754 for males and 196 for females, total 950. It was raised to 1,044 in 1912 by the conversion of recreation and other sheds in the Behrampore Lunatic Asylum into wards for 90 patients and by adding four new cells on the female side of the Bhowanipore Lunatic Asylum by partitioning large cells. In the following year the accommodation of the latter Lunatic Asylum was again increased by 10, and the capacity of the Dacca Lunatic Asylum was also raised by 40. The total accommodation available in the last two years of the present triennium was therefore 1,094, *viz.*, 888 for males and 206 for females. But still there has been overcrowding throughout the triennium as can be seen from the maximum number confined in any one night, which was 1,110 in 1912, 1,134 in 1913 and 1,110 in 1914. The capacity of the Bhowanipore and Dacca Lunatic Asylums is just sufficient for their present population, it is insufficient in the Behrampore Lunatic Asylum, especially on the male side.

The population of the last-mentioned asylum has steadily increased since its amalgamation with the Dullunda Lunatic Asylum in 1905. It was 528 on the last day of that year and has now risen to 718. During the past year the maximum number confined on any

one night in this asylum was 746, *viz*, 616 males and 130 females. This is in excess of its capacity which is 710 only, *viz*, 583 for males and 127 for females. As there does not appear to be any likelihood of the proposed Central Asylum at Ranchi being built in the immediate near future, it is essentially necessary that the accommodation of the Behampore Lunatic Asylum should be increased, and it appears to me that, the only economical way of doing this, is by remodelling the rooms now used as godowns, but which are too good for such use, into wards for patients, and by providing cheap structures for use as godowns. I discussed this scheme with the Superintendent and also wrote about it in my inspection note two years ago, and I am glad to find that Colonel Edwards who acted for me in 1913 was of the same opinion after he visited Behampore. An estimate amounting to Rs 9,947 has been drawn up for the construction of these new godowns, and I have asked the Superintendent to have an estimate of the cost of the necessary alterations in the existing godowns drawn up as well, so that both the schemes may be dealt with together. I hope that the projects will shortly be ready for submission to Government for administrative approval.

Subdividing cells and patching up godowns and converting workshops this is all that has been done to meet a demand for overcrowding which has persisted for ten years!'

The fact is that neither the Government of India nor the Bengal Government realise their duties towards the insane population of India. A Province like Bengal with 50 millions spends less than a single English county on the insane. In view of such accommodation what is the use of writing pages of report to show what has been done. In Bengal the Medical Department has at Behampore an expert alienist second to none in experience and knowledge—what can he do? All that is said about a better state of things in the future is a remark in the colourless Secretariat Resolution —

It is understood that the Government of Bihar and Orissa has submitted to the Imperial Government the scheme for a Central Asylum at Ranchi to accommodate 1,500 patients in which three-fourths of the accommodation will be at the disposal of this Government. But financial considerations are likely to defer the construction of the building, and in the meantime the Government of Bengal are prepared to take up the additions to the Behampore Asylum.

A detailed and complete scheme was submitted to the Government of India and a Committee appointed by the Government of India sat at Belvedere and discussed the new Central Asylum scheme just ten years ago! Words, words

THE COONOR PASTEUR INSTITUTE

The eighth annual report of the Southern India Pasteur Institute is published by the Director Major J W Cornwall M.D., D.P.H., M.S.

We make the following extracts —

The total number of patients treated since the opening of the Institute was 1,210. The number of deaths from hydrophobia was 21. Of these 6 died

during the course of treatment, 7 died less than 15 days from the date of completion of treatment and 8 died more than 15 days after the completion of treatment. The latter are classed as failures, giving a rate of 0.66 per cent.

There were in addition 11 patients who did not for various reasons complete the course of treatment. They are omitted from the table.

At the close of the year 35 patients remained under treatment.

One hundred and thirty-five persons came here for advice but were not treated, as on enquiry it was found that they had run no risk of infection.

The virus was in its 484th passage on 28th February 1915.

There has been a slight fall in the total number of patients treated compared with the last two years. The decrease is confined to the latter six months of the year and must be ascribed partially, at least, to the war, although it is not clear how the native population was affected thereby. European patients form 11 per cent of the total treated during the past 8 years this year they are 9 per cent.

It is also possible that greater attention has been paid by Municipalities to the matter of dealing with dogs, which has had the effect of reducing the incidence of rabies, but the figures at my disposal do not lend much support to such a consequence.

It is the Indian population to whom rabies is a danger. Europeans are less exposed to bites by reason of their clothing, lodging and care. There is no reason to suppose that Europeans are any less susceptible to hydrophobia than Indians, and though the statistics of this Institute seem to show a greater mortality amongst the latter the difference is probably entirely due to the larger proportion of the former who come for treatment for problematical infections.

For example, amongst 5,545 Indians, there have been 87 deaths from hydrophobia during and after treatment, a rate of 1.56 per cent, whereas amongst 1,145 Europeans and Eurasians there have been 2 deaths, a rate of 0.17 per cent, or one-ninth of the rate amongst Indians.

On the Mortality due to Rabies

The enquiry under G. O. No 716, Public, dated 31d July 1911, was continued during the year. Suggestions were made with the object of changing the method followed in collecting figures, but Government, in G. O. No 1136, Public, dated 5th September 1914, desired the continuation of the original scheme. This has been done and the period of observation has been reduced to three months.

Three hundred and eighty-two persons who had been bitten by undoubtedly rabid animals were observed.

Of these, 123 had been treated at this institute and 259 refused to come for treatment, that is to say, only 32 per cent of the persons bitten would come to Coonoor for treatment.

Amongst the 123 persons treated three died from hydrophobia, a rate of 2.2 per cent. One died of other causes.

Amongst the 259 untreated persons sixteen died from hydrophobia, a rate of 6.1 per cent. Thirteen died from other causes.

These results tally pretty closely with those previously recorded (*Vide* Seventh Annual Report, pages 20-22).

There is yet another source from which accurate figures concerning the probability of rabies following a bite may be slowly obtained. It sometimes happens that when a batch of persons is bitten by a rabid animal none of them come to this institute for treatment, because either they do not know about it and the

travelling facilities afforded them, or they have some other reason. If, however, after the lapse of several weeks, one or more of them develop hydrophobia, some of the remainder take flight and hurry up to Coonoor. During the past two years such cases have been investigated separately and have not been included in the enquiry going on under G. O. No. 716, Public, dated 3rd July 1911. The following table shows the figures so far collected—

| | |
|--------------------------|-----|
| Number of persons bitten | 81 |
| Number treated | 17 |
| Deaths among treated | Nil |
| Number untreated | 64 |
| Deaths among untreated | 31 |

No conclusions as to the efficacy of the treatment offered by this institute can be drawn from this table, for the reason that none of the patients came under treatment until several weeks had passed, and those of them who would under any circumstances have developed hydrophobia probably had already done so. In other words treatment could not be refused to the seventeen who applied for it, but it was *probably* not necessary as none of them *probably* would have suffered any consequences from their bites. One is here stating a probability and not a certainty, nevertheless, so as to exclude all possibility of magnifying the mortality, it is safer to calculate the percentage of deaths in this series on the total number of persons bitten than to exclude those treated. Even so the high figure of 41.9 per cent is thus obtained.

In estimating the mortality among persons bitten by rabid animals it is becoming increasingly clear that a criterion must be set up and that it must be decided what cases to include and which to exclude.

On pages 21 and 22 of the Seventh Annual Report I pointed out that instances occur of several persons being bitten by an undoubtedly rabid animal without hydrophobia resulting. The probability of infection does not, therefore, directly depend on the fact that the animal has rabies. Experiments have often shown the difficulty of securing infection in laboratory animals by means of the saliva of rabid animals. Some factor, which we have no means of ascertaining, determines whether or no the virus shall be contained at a particular moment in the saliva of a rabid animal. It follows that laboratory proof of rabies in the biting animal is no proof of the infectivity of its saliva at the time of biting, nor is it a measure of the risk run by the persons bitten. The general public is deeply convinced of the existence of degrees of rabies in animals, they speak of a dog being "very mad" and "not very mad," implying thereby degrees of risk incurred. While there is no experimental or statistical foundation whatever to support such a conviction, it is possible that the public, as is not infrequent, is in a way right, though uncomprehendingly. Another tradition is that if a number of persons are bitten successively by the same animal those who come earlier in the series run a greater risk than those who are later.

Added to all these considerations the severity and position of the bite, the presence or absence of clothing, the varying susceptibility of individuals and the possible influence of antiserum or other immediate treatment have all to be allowed for in estimating the value of the inoculation treatment. With so many variables it seems a well nigh hopeless task.

In consequence I am inclined to the conclusion that only those cases are available for statistical work in which the infectivity of the animal at the time of biting is indubitably proved by the fact that one or more of the persons bitten has succumbed to hydrophobia without, or in spite of, prophylactic treatment. To amass a sufficiency of such cases will be a work of time.

AMERICAN LEISHMANIASIS

We are every year becoming better acquainted with infections due to various forms of the Leishman-Donovan bodies and the recent reported successful use of tartar emetic in these affections has attracted still further attention to this group of diseases.

The *Transactions* of the Society of Tropical Medicine and Hygiene London (Vol. VIII, No. 7 June 1915) has two articles on Buba or American Leishmaniasis of which Dr. Migone of Paraguay gives (*loc cit* p. 219) the following description. The disease has been confused with syphilis, yaws and other tropical ulcerations. The disease is well known in Paraguay and the ulcers often cure spontaneously in the course of seven or eight months leaving a characteristic parchment-like scar—

During recent years a disease called buba has appeared in the north of Paraguay, among the native workmen in the large industrial establishments of these regions, in the Yerba Mate plantations, and in the lumber forests. The condition is an ulcerating affection, of a chronic nature and slow development, which attacks the uncovered parts of the body—the feet, the legs, the arms, neck, and face—and later invades the mucous membranes of the nose, pharynx, larynx, palate, and lips. This disease has very likely spread to this country from the neighbouring state of Brazil, where it has long been known to exist. At the present time, owing to a lamentable negligence on our part, these ulcers are appearing in our territory to such an extent that, according to the evidence of patients coming from these districts, hardly a house can be found in which one or several cases of the disease do not exist.

The disease has been observed in natives of the country, and in foreign residents, in men and in women, in the old, and in infants at the breast. There have been years and districts in which it has caused terrible havoc. Of one hundred workmen who entered the woods to work, seventy to eighty of them had to leave within two months owing to the development of ulcers, in many instances, in large numbers spread all over the body.

On the subject of treatment Dr. G. C. Low made the following remarks—

I should like, in opening the discussion on Dr. Migone's two very interesting papers, to make one or two remarks in regard to treatment. I see, for example, that no mention of intravenous injections of antimony is made in this respect. The late Dr. Gaspar Vianna has lately shown that such injections are very beneficial in the treatment of ulcerating granuloma of the pudenda, and if the results which he claims to have obtained are eventually confirmed, one of the most wonderful advances in therapeutics in recent years will have been made, as up to the present time no drugs or local treatment have been found to be of any value in this terrible disease.

I mention the treatment of ulcerating granuloma with intravenous injections of antimony especially, because similar treatment has recently been tried in South America for local and general forms of leishmaniasis.

I was speaking to Dr. Wenyon, lately, on this subject, and he told me that such injections were said to have a very beneficial effect upon local lesions, but did not cure the ulcerating lesions of the pharynx and the

nose Still, as Di Migone has pointed out, if the local lesions are quickly treated and removed, general lesions may not necessarily follow

A recent French paper in the *Bulletin de la Société de Pathologie Exotique* gives the results of a similar line of treatment in infantile kala-azar. Cases are there reported with apparently beneficial results from such injections. This is very interesting, because you all know that the treatment of trypanosomiasis with antimony has often been successful, and probably forms the most beneficial treatment for that disease we at present know of

A MILITARY TUBERCULOSIS HOSPITAL

In the United States army tuberculosis is sufficiently prevalent to necessitate the wise provision of a separate hospital for the treatment of such cases. The report to the Surgeon-General U S A, gives the following description of this hospital at Fort Bayard, New Mexico —

This hospital is for the treatment of cases of pulmonary tuberculosis in the Army. Fort Bayard is situated in the south-western part of New Mexico, the reservation originally extended about 4 miles north and south and 3 miles east and west, and had an area of approximately 13½ square miles. Several years ago it was enlarged by the purchase of land to the north and by the addition, through Executive order, of various tracts of public land, the object of the enlargement being the more perfect protection of the watershed and the acquisition of additional water. On the north the land rises rapidly, reaching the height of 9,000 feet at Black Peak, about 8 miles from the post. In this direction the surface is broken by rocky hills covered with pinyon, juniper, and western yellow-pine trees. The country is picturesque, and fine views are to be had from the hills. To the south the valleys widen into vast treeless plains. The feature which constitutes the peculiar excellence of the climate at Fort Bayard and distinguishes it from other parts of the Rocky Mountain Plateau is its relative equability. The climate is such that outdoor life is pleasant throughout the year. Two factors contribute to secure this result—the altitude and the geographical position. The altitude, 6,165 feet, prevents excessive heat, the hot plains of a lower elevation, which surround on all sides the mountainous region in which Fort Bayard is situated, temper the cold winds of winter and prevent excessive cold.

Over 1,000 cases were treated during the year and the average strength was 11 officers, 108 enlisted men, 123 beneficiaries of the Soldiers' Home and 13 civilians.

PLAGUE IN EUROPE AND THE BLACK RAT

The following conclusions are drawn by Dr C Strickland, the Travelling Medical Entomologist in the Federated Malay States (*Lancet* November 14th, 1914) on the rôle played by the black rat in the history of plague in Europe —

The black rat was responsible for the great plagues of Europe in the past. The epidemics had a summer incidence due to the increased flea prevalence at that season. (2) When good housing became the vogue the black rat disappeared. The brown rat did not vanquish him. (3) At the same time the brown rat increased owing to the introduction of conditions which suited him. (4) He has not proved a factor of any importance

in the epidemiology of plague, because—(i) his shyness of man takes him as far as possible from man and decreases the chances of infecting him, (ii) his shyness takes him away from the greater centres of population, where it would be easier to start an epidemic—he is essentially a country-side rat, and (iii) in the summer the fact that he is dispersed over the country-side in search of food lessens the probability of an epizootic among his species by, we calculate, 250 times. This fact also shows that whatever danger he creates is accentuated in the winter, which proves that he was not responsible for any of the epidemics of the past, occurring as they did in summer. It also shows us that the best and most useful time of the year to attack him is in the winter. (5) Measures directed against the black rat should be the replacement of wooden by stone structures against the brown, no access to food-supplies, street paving and concrete basements, fermenting, trapping, and viruses in the winter, good houses instead of rows of "jerrybuilt" structures. In general we conclude that plague has no further potential epidemic incidence in Europe, wherever the brown rat has replaced the black.

Numerous references to the "anti-opium plant," *Combretum sundarum*, have appeared in the *Prescriber* (1907, p 97, 1908, pp 32, 79, 153, 178, 1909, p 63), in which all that has ever been published on the subject has been summarised. The drug contains no active principle except tannin, which probably had the effect of lessening the diarrhoea produced by the decreased dose of opium. Nothing has been heard of it for over five years, so it may be regarded as a failure (*Prescriber* July 1915).

We regret to see that the once scientific *Centralblatt für Bacteriologie, Parasiten, und Infektionskrankheiten* has been reduced to publish papers lauding the merits of a respectable tooth paste—*Quantum mutatus ab illo*

Reviews.

Notice—The book on *Use of Tuberculin* by Major Cochran and Major Spawson M V S which we noticed in our August issue, is published in India by Messrs Butterworth & Co, India, Ltd of Hastings st, Calcutta. The London publishers are Messrs Ball Sons and Danielson Ltd.

Leper Houses and Mediæval Hospitals—By Dr C A. MERCIER, London, 1915. H K LEWIS. Price, 1s net.

THIS pamphlet consists of the Fitz-Patrick Lectures on medical history delivered in November last by Dr Mercier before the Royal College of Physicians, London.

Dr Mercier rightly supposes that medical hospitals existed in "pagan" Rome but there is next to no record of such.

The first hospital of which we have any record was founded for lepers in the 4th century by Zoticus, a wealthy noble of the Court of Constantine, and the Emperor himself is said to have been a leper after the year 372. St Basil

devoted his life and fortune to a great leper hospital at Caesarea, a fact most strangely ignored by Cardinal Newman in his *Life of the Saint*

Nurses the *Eunuch* and great general founded a hospital for the sick, and the Emperor Justinian legislated for and established many more

In the great days of the Caliphs and especially in Moorish Spain hospitals were established and medical schools grew up under such great teachers as Rhazes, Avicenna Averroes etc., in this respect the Moors far surpassed Christendom of the dark ages from the 9th to the 12th century Christendom however did establish in a very widespread way leper hospitals and in the course of centuries many became very rich, so that in 1318 Philip the Tall unscrupulously confiscated the revenues of many

Leprosy as a widespread disease lasted in Europe for some 1200 years and 'disappeared spontaneously after many centuries of virulence' Why? It was not exterminated by the isolation of lepers, nor by spread of sanitation, our ancestors in respect of cleanliness and sanitation were no better in the 15th and 16th centuries than they were in the 12th and 13th

In fact Dr. Mercier strongly inclines to the view that leprosy is represented by tuberculosis—a disease which it resembles in many respects

This pamphlet is well worth reading

Materia Medica and Pharmacy—By R. R. BENNETT, B.Sc. (Lond.) 3rd Edn. Fcap. 8vo, pp. 262. London, 1915. H. K. LEWIS. Price, 4s. 6d. net

This is the third edition of a little book first published in 1908, giving a concise account of the drugs, chemicals and compound preparations of the B. P.

The metric system having been employed throughout the 1914 edition of the B. P., this little book, as a transitional provision gives the dosage in both old and new terms

The little book is accurate and full of information. The appendices are very useful especially the dose-tables giving the equivalent doses in the metric and the old system, thus a single dose of Tinct. Opn is given as 12 to 18 decimals or 20 to 30 minims

It seems to us to be a very useful book, and one to be recommended to students

A Campaign against Consumption—By ARTHUR RANSOME, M.D. Cambridge University Press, 1915. Price 10s. 6d. net

DR A. RANSOME is the author of several well-known books on the Causes and Prevention of Phthisis and on the open-air treatment. The present volume is a collection of papers written at various periods during a fifty years' campaign against consumption. Many of the articles deal

with the subject from a public health point of view and others are on more scientific aspects of the problem

The subjects are many e.g. general chapters on causes, crusades, duties of the State, others on limits of infection, susceptibility, and bodily conditions resisting phthisis. Another section deals with Iodoform in phthisis, pure oxygen treatment, re-infection etc. A chiefly statistical section deals with evidence as to tubercular infective areas, a parallel and a prophecy about tuberculosis and leprosy—the prospects of abolishing phthisis and the significance of phthisis notes

Not one of the chapters will be found unworthy of perusal. In fact the whole book is full of suggestive facts and figures. We can strongly recommend the book to all those interested in the prevention of tuberculosis, a subject which at long last has been taken up in a hopeful way by our larger municipalities such as Bombay, Calcutta, and Lahore

The general practitioner too will find many chapters of great interest to him

Public Health Bulletins No. 66—U. S. Public Health Service. Washington, 1914

BULLETIN 66 is entitled *Studies upon Leprosy* and contains *Immunity Studies* by Dr. Moses Clegg, by McCoy and H. T. Hollman. We may quote the summaries and extracts—

Summary—The serum of but few lepers agglutinates any of the acid-fast cultures we have isolated from lepers, and then only with a small proportion of the cultures

Lepers injected with acid-fasts isolated from leprous tissues develop specific agglutinins in the majority of instances

Agglutination methods afford means of making group classification of the majority of acid-fasts, and extracting the fat from the organisms does not make the re-actions more specific

Immunization of animals (rabbits) with leprous material does not yield agglutinins for any of the acid-fast cultures at our disposal

Serum from lepers contains the normal amount of complement

Serum from lepers binds complement in the presence of nodular antigen, but the re-action is not specific

Pure cultures of acid-fast organisms have been secured from 11 of 83 specimens of leprous tissue submitted to cultivation in the presence of symbiotic organisms

The cultures were obtained with about equal facility whether amoebae were present or not, and in two instances where contamination were present in the tissues no added symbiont was required

There is a large element of chance in cultivating acid-fasts by the symbiont method

The organisms isolated are incapable of producing leprosy-like lesions in laboratory animals

Tubercle bacilli will multiply on amoeba again in the presence of cholera vibrios and amoebae

The statement so frequently made that prolonged and intimate contact with leprosy is needed to bring about infection is certainly not borne out by the facts in Havana. Cases are all too frequent in which there is absolutely

no history of any association with lepers, and this is true in some cases where the statement of the patient can be verified by reliable collateral evidence

The length of time that symptoms have existed before the patient comes under the control of the health authorities is probably a very important matter in determining the success or failure of segregation. In this case also it is probable that false and misleading answers would often be given. While we are not acquainted with the mode of transmission of the disease and do not know at what time in its course it is infectious, there is no reason for doubting that the early stages are at least as dangerous as the later ones. It should be borne in mind in considering the length of time the disease has existed before the apprehension of the patient that an early diagnosis of leprosy is often difficult and sometimes impossible. Nor is the difficulty confined to early cases as the following example will show. The writer recently had occasion to examine two persons who had been inmates of the Molokai settlement for a number of years for the purpose of determining whether any signs of the disease could be detected. In one case the microscopical examination of smears made from five doubtful lesions was negative, while the sixth, also from a doubtful lesion, showed acid-fast bacilli in considerable numbers. In the second case, three examinations were made at intervals of several months, the first and second were negative, while the third resulted in the finding of characteristic organisms at the site of an old lesion. These were both cases which clinically gave only trifling evidence of skin lesions and none whatever that would, under ordinary circumstances, have been regarded as suspicious of leprosy.

BULLETIN No 99

This we hope finally gets rid of Dr F F Friedmann's claims to cure tuberculosis by means of injections of a living acid-fast organism. It is concluded that —

The claim of Dr F F Friedmann to have originated a specific cure for tuberculosis is not substantiated by our investigation.

The claim of Dr F F Friedmann that the inoculation of persons and animals with his organism is without harmful possibilities is disproved.

BULLETIN No 97

This is an account of some new Siphonaptera especially those from the Philippine Islands. It is very well illustrated.

Indispensable Orthopædics — By F CALOT
Translated from the sixth French Edition by A. H. ROBINSON, M.D., M.R.C.S., and LOUIS NICOLE.
With 1,252 original figures and eight coloured plates. London BAILLIERE, TINDALL and CO., 1914. Pp 1175. Price 21/ net.

It is not obvious at first sight to whom this bulky volume is intended to be "indispensable." Certainly not for students as it is not a text-book of orthopædic surgery in the ordinary sense nor for surgeons as it contains no discussion of any methods other than those employed by the author. It appears to be addressed to general practitioners and aims at instructing them how to carry out the methods of treatment employed at Berck.

There is no account of the pathology of any of the conditions described. The clinical descriptions are in most cases extremely sketchy, and throughout there is a tendency to ignore varieties of disease and to classify affections into "stages" according to the treatment indicated. For example throughout the book there is no distinction drawn between cases of tuberculous joint disease in which local foci are discoverable in the bones and those in which the disease is purely synovial.

The work in fact consists solely of accounts of the methods of treatment employed by the author, other methods being mentioned usually only to be condemned. The book is very diffuse the same methods being repeated again and again and it might with advantage, in our opinion, be cut down to half the size.

Regarded however merely as an exposition of the methods of treatment of surgical tuberculosis and deformities carried out at Berck the book is of considerable value. The technique of work in Plaster-of-Paris and celluloid and of aspiration and injection of abscesses is, as might be expected from Dr Calot described with extreme care and minuteness. Emphasis is laid on the length of time and the patience requisite for carrying out these methods of treatment. In every section the motto *festina lente* is impressed on the reader, but the gratifying results which may be obtained are well illustrated by such figures as Fig. 240 bis and ter, illustrating the results of 3½ years' treatment of a case of high Potts' disease, and Figs. 657 and 658 illustrating the results of treatment without osteotomy of three severe cases of genu valgum. The reviewer having had the privilege of working for some time under a surgeon who treated large number of cases of congenital dislocation of the hip and congenital talipes on much the same lines as those advocated in this book, by forced correction under anaesthesia supplemented by tenotomy, the corrected position being maintained by Plaster-of-Paris splints, renewed at intervals with the attainment of an improved position at each sitting, can vouch from his personal experience for the excellence of the ultimate results obtainable. He can also vouch for the patience and minute attention to detail necessary to secure these results, on which the author rightly insists.

The translators appear to have made practically a literal translation without any attempt to render the original into idiomatic or even readable English which makes the book anything but easy reading.

The illustrations are profuse, unnecessarily so we think, but a word of praise must be given to the beautifully executed coloured plates.

The printing and general get-up of the book are excellent.

Health Report of Liverpool —Liverpool Health Committee, 1914

THIS is a comprehensive and detailed report by Dr E W Hope, the Medical Officer of Health. It is not possible here to review at length a report dealing in detail with the health conditions of the 756,553 persons who live in the great city of Liverpool. The birth-rate in 1913 was 29.8 while the death-rate was only 18.0 with a five-year average of 18.4.

We note that two cases of Leprosy were imported in a Syrian from Jaffa and in a Chinaman who had been three years in Liverpool, both were sent back to their own countries. Plague had not appeared but all precautions were kept up, and over 19,000 rats were caught and 7,913 were sent to the City Bacteriologist for examination. There were only 13 cases of small-pox with one death, and a table given shows the steady decline of cases for the past 14 years. A few cases of typhus were discovered in trans-emigrants on their way to America from continental ports.

Of Typhoid there were only 153 cases with 34 deaths. Measles is an ever-present complaint, but the very cases seem to occur in larger numbers in alternate years. The remarkable drop in the incidence of cases at the commencement of school holidays in July is well brought out.

Whooping cough is most prevalent in infants under two years of age, where isolation is not practicable. Diphtheria was represented by 1,006 cases, of which 826 were removed to hospital.

Zymotic diarrhoea —Of this fatal complaint 645 deaths were registered, and the cases are attributed to the introduction of the specific poison by food. The deaths in artificially-fed children were fifteen times as great as in breast-fed children.

We recommend this very detailed report to the notice of Health Officers in India.

Differential Diagnosis, Vol II —By RICHARD C CABOT M.D. Published by W B SAUNDERS Company, London and Philadelphia

THIS apparently is the second volume of a series which should prove of great use to medical men. The system adopted by the author is the elaboration of the significance of special symptoms and then bearing on the ultimate diagnosis of the cases discussed. He attains his object by means of case analysis.

In the first volume pain and eleven other common symptoms were discussed in all their bearings and in the volume under consideration nineteen other symptoms have been selected for discussion and illustration by means of analysis of 317 cases.

The symptoms selected for review are abdominal and other tumours, vertigo, diarrhoea, dyspepsia, hæmatemesis, glands, melena, swelling

of the face, hæmoptysis, œdema of the legs, frequent micturition and polyuria, fainting, hoarseness, pallor, swelling of the arm, delirium, palpitation and arrhythmia, tremor and ascites and abdominal enlargement.

The cases are drawn up clearly and succinctly and provide most interesting reading. Every case, moreover, has some special points of interest and not one but imparts some useful knowledge to the attentive reader. The whole book too places at his disposal the benefit of a wide and varied experience.

Apart altogether from the information imparted regarding the value and interpretation of these symptoms individually in diagnosis, a careful perusal of the book from a wider and more general point of view will prove useful to the student and general practitioner, instilling into his mind, as it will, methodical habits and modes of procedure in diagnosis and in many cases illustrating well the processes of reasoning and elimination by which alone it is possible to arrive at a correct diagnosis. The latest and most up-to-date methods of examination are also brought to the notice of the reader and their value as diagnostic aids ably illustrated in the narration of the cases.

The student and tyro will also gather from its pages that even authorities may differ in their opinions on cases, that all cases cannot be cured nor is it possible in all cases to recommend treatment even. Hence they will acquire knowledge as to the true relation of the physician to disease and realise the folly of prophesying a cure in each and every patient as well as the danger of the "lightning diagnosis."

The volume is printed in large clear type on excellent quality paper and is thus easily decipherable by the uncertain light of the lamps so universal in the mofussil. The illustrations are numerous and well-chosen and in all cases ably elucidate the point desired. Numerous charts and diagrams still further enhance the efficiency of the book.

This work can be recommended to medical men as a useful and handsome addition to their library.

ANNUAL REPORTS

ASSAM HOSPITAL

COLONEL H E BANERJEE submits the interesting report on the dispensaries and hospitals of Assam, from which we take the following extracts —

"At the commencement of the year there were 225 hospitals and dispensaries at work. Nineteen travelling dispensaries were opened during the year, three railway dispensaries on the Eastern Bengal State Railway system were transferred from the jurisdiction of this province to that of the Bengal Presidency, the cooler

corps hospital at Sadiya was amalgamated with the charitable dispensary, four mission and four Manipuri State dispensaries in charge of unqualified assistants were removed from the list of dispensaries shown in this statement, and 28 were closed, leaving 204 dispensaries open at the close of the year. The dispensaries that were closed were 20 travelling ones in different districts, two State ordinary dispensaries, one military police hospital, and one Public Works Department dispensary in the Naga Hills, three Local Board dispensaries (one each in Lakhimpur, Kamrup, and Darrang) and one mission dispensary in the North-East Frontier. The closure of 26 of these dispensaries was due to the deputation of a number of Sub-Assistant Surgeons to military duty, while of the remaining two, the military police hospital at Tamlu in the Naga Hills was closed when the station was abandoned as a police outpost and the mission dispensary at Sadiya was closed owing to the departure of the mission medical officer on long leave.

"The number of cases of pyrexia of uncertain origin rose from 351 to 13,191. In previous years almost every case of fever was put down to malaria, but I have asked for greater attention being paid to the correct classification of diseases and particularly of fevers with the result that the numbers under this head and under those of tubercle of lung and tumours show an increase. Of the 43 cases of appendicitis against 6 in 1913, 36 are reported from Cachar where Major McCoy has established a reputation for abdominal surgery.

Work in connection with the anti-syphilis campaign in the Naga Hills was started on the 30th December and will be reviewed next year. The number of patients treated for small-pox during 1914 was 24 against 28 in 1913. Of these 10 were vaccinated and 7 unprotected, while of the remainder one patient was represented by a friend, one was brought into the hospital in a comatose state and died within a few hours and in the case of 5 others no record appears to have been kept. Civil Surgeons will be requested to keep a careful record of the vaccinal condition of all patients in future."

"The total number of surgical operations, both principal and secondary, performed in the State—Public, Local Fund and Private-aided dispensaries—was 26,516 in 1914 against 25,696 in 1913. The number of selected operations performed in the year was 1,668 against 2,030 in 1913. The decrease is due to my having insisted on minor operations being excluded from the list.

Of the selected operations Major H A J Gidney, I.M.S., performed 532 including 399 extraction of lens, and 22 sclero-corneal trephining.

Major J W McCoy, I.M.S., 112 including 25 for appendicitis, 3 laparotomies, and 7 each for radical cure of hernia and cataract.

Captain S C Chuckerbutty, I.M.S., 43 and Captain W L Harnett, I.M.S., 28.

Among Assistant Surgeons may be mentioned, H. Krishna Das, Dibrugarh, 52, H. Lyngdoh, 47, and Suresh Chandra Roy, 31.

One Sub-Assistant Surgeon Surendra Nath Sen, Darrang, performed 35 operations, which included 27 extraction of lens."

"There appears to have been a needless waste of money over European medicines indented for branch dispensaries in past years. Not only have rare or costly drugs been ordered, but sufficient care does not seem to have been exercised also over the checking of annual indents for ordinary drugs which have been passed

without reference to stocks in hand or expenditure during the previous year. This is being remedied.

It is to be regretted that 20 travelling dispensaries have had to be closed to meet the demands for services of Sub-Assistant Surgeons by the Military Department. I have had some difficulty in meeting these demands, particularly as they led to a number of resignations, which meant the closing of some of the least important branch dispensaries. The number of travelling dispensaries at work during part of the year was 26. They treated a total of 42,202 patients, the largest number being 8,753 in the Lushai Hills, 8,205 in Cachar, 7,862 in Sylhet, 5,625 in the Naga Hills, and 2,869 in Darrang. The number treated in the remaining districts excepting Nowgong where none was established, was below 2,000.

Another matter of importance is the necessity of keeping up the training of Sub-Assistant Surgeons in charge of branch dispensaries by either sending them once a year to the headquarters of the district or to the Berry-White Medical School at Dibrugarh, so that they may make themselves acquainted with the most recent methods of diagnosis and treatment. This will be easily understood when I mention that at my inspection a first grade Sub-Assistant Surgeon, who had only recently passed his examination for promotion, considered it was unnecessary to sterilise his knives in a steriliser, because they were sent out by manufacturers in aseptic handles while a second grade Sub-Assistant Surgeon proceeded to demonstrate how he sterilised his knives by putting a scalpel in the flame of a spirit lamp."

CHEMICAL EXAMINER'S REPORT, PUNJAB

MAJOR J A BLACK, I.M.S., submitted this report —

The great need is for a modern laboratory which is, as Colonel Bamber remarked, a matter of great urgency. Plans and estimates are ready, money alone is lacking. A small laboratory in the Hills for summer work is no doubt essential and will we hope be soon provided also.

Human poisoning was detected in 438 out of 579 suspected cases, arsenic and opium being the poisons chiefly used, but it is worth noticing that arsenic is less and less being used for human poisoning since the date of the Poisons Act of 1907, while at the same time the high percentage of the use of arsenic in cattle poisoning shows that in spite of the Act arsenic is easily procurable.

The following note on the serological method for the detection of blood stains, as developed in the skilled hands of Lt-Col W D Sutherland, I.M.S., in his Calcutta Laboratory, is of interest.

The Imperial Serologist has kindly furnished a note of the number of cases and articles received by him from various stations in the Punjab, together with the results, as follows —

| No of cases | No of articles sent | Found to be blood stained | Human blood detected |
|-------------|---------------------|---------------------------|----------------------|
| 43 | 109 | 68 | 61 |

It will be seen from the above figures that at present the amount of blood work sent from this province to Calcutta is very small compared to that done in this

laboratory, but it seems probable that in the future, as the value and importance of the results obtained by the Imperial Serologist are more widely recognized, a larger proportion of the work of the province will find its way into his hands. Incidentally it may be noted that, including the blood work sent direct to Calcutta, the total amount of work done for the province under the heading "Stain cases" shows an increase of 20 cases and 42 articles as compared with the previous years work.

THE PUNJAB LUNATIC ASYLUM

THE report on the working of the Punjab Lunatic Asylum for the three years 1912-14 has been submitted by Major E. L. Ward, I.M.S.

There has been a steady and progressive increase in the population, a result which will necessarily happen when the Governments of the various Provinces have realised their great duties to this miserable class and opened more Asylums of the type of the Central Asylums at Lahore or Agra. It cannot be too often repeated that the various Provincial Governments in India get off very cheap in the matter of Asylum accommodation, and the number of insanes actually inhabiting the Asylums forms but a small proportion of the total number of mentally deranged persons at large among the peoples of India.

This fact alone is evidence of the growing popularity of the institution, for ever since its inauguration in 1900, this steady growth has been maintained, and a comparison with the first year of its history will not be out of place. In 1900 the total population was 608 (487 males and 121 females) and in the last year of the present triennium under review 991,775 males and 216 females. From this it will be seen that the increase on the side of the females as compared with the males is proportionately greater, a point that is extremely satisfactory to note, considering that with the vast majority there is a conservative dislike to bringing their women-folk away from their homes for treatment in a public institution such as this, and it may reasonably be presumed that the benefits of the asylum are more widely known amongst the general population, who of themselves frequently bring up their relatives and friends for treatment from the remotest part of the province, and not, infrequently, from other parts of the country. The measure of popularity enjoyed by the female asylum has no doubt been greatly enhanced by the solicitude and sympathetic treatment of the Franciscan Sisters who have now been in charge of this branch for the past 12 years. Increase in the asylum population is by no means commensurate with the increase of insanity in the province, for according to the census figures of 1911, the ratio of insanes per 100,000 of the population has decreased from 35 to 26 as compared with those so afflicted in the census year 1901.

For the first time there has been an admission of a case suffering from general paralysis of the insane, but it occurred in an European and calls for no special comment. This disease has never been known here in an Indian patient.

Violence, destructiveness, and dangerous habits continue to be the cardinal feature of the Punjab insane and thus for the obvious reason that the harmless are rarely if ever brought for treatment and the type of race from which he comes, the Pathan, Jat, and Punjabi Muhammadan is more boisterous and truculent than the down country man.

The percentage of cures continue satisfactory being highest in the year 1912, making 22.71 per cent on the

average strength and 62.50 per cent on the admissions. This high standard of recoveries has continued though in somewhat smaller numbers in the two following years. It is chiefly the acute Hysterical cases that make a rapid recovery and account for the large proportion of the cures. The exhaustion Psychoses usually recover provided they are admitted early and one cannot too much emphasise the benefit of early admission for treatment in all cases of insanity especially those due to an exhaustive cause, a delay of 10 days making all the difference to their ultimate recovery.

The same difficulty is experienced in obtaining an efficient and reliable class of attendant. The very objectionable nature of the work, which is both dangerous and dirty, no doubt deters a better class of recruit from presenting himself. Every inducement has been made to obtain suitable men, but without avail, as a greater attraction the pay of these men will still further be raised with effect from the ensuing financial year, and the rates to be adopted compare extremely favourably with most other classes of the same status.

The introduction of 2 superior Indian warders, retired non-commissioned officers of the native army, is a measure that has more than justified itself. These men, and we have been extremely fortunate in getting a good type, have rapidly grasped the nature of their duties and proved themselves entirely reliable and very sympathetic in the care of the insane. Perforce of good example their line of conduct has, it would appear, to a degree permeated the subordinate staff, and it is certainly not an extravagant hope that the future salvation of the Punjab asylum attendant may be due to the example of his superior *confidant* from the Indian army. A very fine set of 15 quarters were added for this class in 1914, and the inconvenience and overcrowding has been relieved. More quarters are, however, required and the construction of a block of 10 is at present under consideration and then early completion is certainly most desirable to meet the recent addition to the number of the attendant staff.

An European warder has been engaged since the early part of 1914, but no quarters having been as yet provided, the incumbent has to make his own arrangements for housing. The appointment is by no means attractive and it is very doubtful whether a really good man could be induced to remain under present arrangements.

As heretofore it has been found that the insane is very much better controlled and more amenable to discipline when he can be induced to take up some form of avocation, of these there are many in the asylum. All the cooking, washing, weaving, mulling of blankets, cleanliness and the endless varieties of occupation common to an asylum, are carried out by the inmates, the larger number of whom are chronic maniacs. They are often good, harmless workers, who under supervision perform most of the ordinary duties of the institution, and without whose presence a vastly multiplied staff of attendants and servants would be necessary. The criminal lunatic as usual forms a very large percentage of the working population, being entrusted with the occupations requiring some skill such as weaving and mat-making, or as dressers and attendants on the sick. The garden provides occupation for about 70 to 80 daily. It is an excellent and most healthy form of work and extremely remunerative, for all the vegetables, a matter of 6 to 7 maunds daily, required for asylum purposes, are provided from the garden and also all fodder required for the asylum cattle. In addition there has gradually matured a very good orchard which supplies all antiscorbutics required in the dietary. *En passant* it may be mentioned that the asylum garden has secured two second prizes at the Lahore vegetable shows of 1913 and 1914.

These are continued in much the same way as before. The large pleasing and shady grounds afford ample space for enjoyment and, in summer more especially, form an ideal spot. Gymnastics are provided though for some reason rarely or ever indulged in. Newspapers and books are at the call of the more literate while cards and various varieties of Indian games are indulged in. A gramophone and magic lantern furnish a certain amount of amusement.

We heartily endorse the following words of the Government Resolution —

"Lieutenant-Colonel Ewens who had held charge of the asylum since its foundation some 15 years ago died on the 9th September, 1914. The Lieutenant-Governor heartily endorses the remarks made in the report and by the Inspector-General of Civil Hospitals on his work as Superintendent. The institution owes its progress in efficiency and popularity almost entirely to his untiring efforts and sympathetic care of the inmates, and in him Government has lost a most capable officer and the patients a true friend."

Correspondence.

PAY OF MILITARY ASSISTANT SURGEONS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—You mentioned in the *Indian Medical Gazette* (March 1915) that Military Assistant Surgeons holding "acting" appointments as Civil Surgeons were particularly deserving of an increase. As this would give an increase to only one section and cause dissatisfaction to those excluded, especially those of the seniors who are not "acting" but substantively appointed, and have tried to get an increase for a long time, I trust you will kindly correct the suggestion, so as to include all the Military Assistant Surgeons in independent charge of districts. As a matter of fact all the members required an increase all round, but unfortunately only the juniors in civil employ are at present enjoying an increase of pay. I trust you will ask for the seniors to be treated to a rise as well as the juniors. As matters now stand, the seniors in the department in charge of civil surgeoncies are the only ones left out in the general rise given to the Medical Department, and this is all the more hard on the Military Assistant Surgeons in independent charge of districts, as the Civil Assistant Surgeons serving in a similar capacity, have received an increase since the latter quarter of 1914.

Yours, etc,
SENIOR

[I M G p 103, March 1915. The word "acting" was not used in the official sense. "When acting as Civil Surgeons," meant "employed." We entirely agree with the views expressed as to the need of improving the pay of Military Assistant Surgeons when employed as Civil Surgeons.—ED, I M G.]

A CASE OF EXTENSIVE EMPHYSEMA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—To day a patient came to hospital with the following unusual appearance. There was profound swelling of the abdomen, back, chest, neck, and face, which everywhere crepitated under pressure of the fingers without pitting.

History.—12 days ago, the patient, a male of 29 years, had a sudden attack of pain and swelling in the right iliac and inguinal regions accompanied with obstinate vomiting and constipation. On the 4th day he was brought to hospital where the assistants recognised ileus from strangulated hernia. The physician in charge being absent for a few days the relatives refused to keep patient in hospital and carried him home three miles over the hills.

Present condition.—After "native treatment" patient is carried back to day and shows the condition described above, to which may be added, constipation has persisted, vomiting stopped, penis markedly swollen and erepitant, scrotum moderately so, urine free, hypogastrium shows tympany, boardlike resistance, and acute tenderness, mentality, some comatose, respirations rapid and loud bronchial rales, pulse 120, weak temperature 99.

Operation was refused by relatives. Unfavourable prognosis. Patient carried off home within the hour.

Conclusions.—Probable diagnosis, strangulated hernia with sloughing allowing gas bacillus infection which spread upward through the subcutaneous tissues of the trunk, neck, and head, sparing legs and arms. Perforated bowel probably retracted into peritoneous producing peritonitis localized in the hypogastrium.

Unusual features.—(1) No history of previous hernia, trauma, or strain, (2) Extent of emphysema.

Yours, etc

R H H GOHEEN, M D

OIL OF DHUP

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I have the pleasure to send the following paragraph for publication in your highly esteemed paper.

Dhup, the ordinary incense or smelling substance burnt at the worship of Hindu gods and in the Bengalee houses towards evening for purifying purposes, is a thing too well known to require a description. It is powdered and burnt. The pages of the holy writs are filled up with chants of this sacred article. But hitherto it has been known only to be used in the shape of powder.

I have just extracted "oil" from it which, being perfectly free from sediments or impurities, contains all its properties in this most essential form.

I am sure the oil can now be employed to our best advantage to sweeten and purify the air of our houses. It is antiseptic. It is efficacious in otorrhœa, ulcers, etc.

I have a mind to submit this oil to examination of its properties by the chemists and then see whether it can be profitably used in all disinfectant and antiseptic purposes.

I have some Dhup oil in stock and shall be glad to supply sample to experts for their examination.

I am not aware if anybody else has previously attempted to extract oil from Dhup. I shall be well pleased, nay, thankful if any gentleman has the goodness to favour me with the information.

CHANDPUR, } Yours, etc,
28th July, 1915 } UPENDRA CH CHAKRABARTY
Sub Assistant Surgeon, Chandpur

FORTY FOUR POUNDS OF ASCITES FLUID

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Just this morning, I tapped a female adult patient suffering from ascites caused by cirrhosis of the liver. The fluid measured 70½ ounces (44 pounds). She was previously tapped about 1½ years ago.

I would like to know the highest quantity of similar peritoneal fluid on record.

RAMPUR STATE U P, } Yours, etc,
12th July, 1915 } KESHAVAL J DHOLAKIA,
L M & S

Service Notes.

THE number of casualties among officers reported in the fourteen days, 1st to 14th July inclusive, was 636, of which 320 occurred in the Dardanelles, 305 in Flanders, and eleven in other seats of war, as follows —

| | Killed | Died | Wounded | Missing | Prisoners | Total |
|---------------------------------|--------|------|---------|---------|-----------|-------|
| <i>Dardanelles</i> | | | | | | |
| Naval officers | 4 | 1 | 16 | | | 21 |
| British officers | 62 | | 114 | 38 | | 213 |
| British officers, Indian troops | 6 | | 16 | | | 22 |
| Indian officers | 4 | | 8 | | | 12 |
| Australians | 11 | | 21 | 1 | | 33 |
| New Zealanders | 2 | | 16 | 1 | | 19 |
| <i>Flanders</i> | | | | | | |
| British officers | 80 | 2 | 180 | 13 | 4 | 279 |
| British officers, Indian troops | 4 | | 2 | | | 6 |
| Indian officers | | | 1 | 10 | | 11 |
| Canadians | 2 | | 5 | | 2 | 9 |
| <i>Persian Gulf</i> | | | | | | |
| British officers | | | 6 | | | 6 |
| Indian officers | | 1 | | | | 1 |
| Aden | | | 3 | | | 3 |
| Cameroons | | | 1 | | | 1 |
| TOTAL | 175 | 5 | 397 | 53 | 6 | 636 |

FOUR of the cases shown as wounded in Flanders were suffering from gas poisoning. The chief feature of the week's casualties was the great loss incurred by three Scottish territorial battalions in the Dardanelles. The 4th Royal Scots lost 21 officers, ten killed, seven wounded, and four missing, while the 7th and 8th Cameronians, or Scottish Rifles, lost 37, three killed, fifteen wounded, and nineteen missing. In such cases most of these returned as missing have been killed. Brigadier General W. Scott Moncrieff, of the Lothian Brigade, was also among the killed. The Royal Scots are chiefly recruited in and about Edinburgh, Cameronians from Glasgow.

Among the casualties of the two weeks thirteen Medical Officers were included, one of whom was serving as a combatant. In the Dardanelles Surgeon F. H. Rees, R.N., and Lieut.-Colonel W. B. Pritchard, R.A.M.C. (T.F.), died of wounds, while Captain E. D. Gardner, R.A.M.C. (T.F.), Lieutenant C. F. Bentz, R.A.M.C. (T.F.), and Lieut. H. J. M. Cursetjee, I.M.S., were wounded. In Flanders, Captain J. F. Gwynne, R.A.M.C., was killed in action, Lieut. W. R. Pryn, R.A.M.C., died, while six officers were wounded. Surgeon Captain R. W. Branthwaite and Captains H. J. Gorrie and W. J. Harrison, all R.A.M.C. (T.F.), Lieutenants H. Pierce and C. P. V. McCormack, temporary R.A.M.C. and Lieutenant D. Blair, L.D.S., of the 4th battalion, Black Watch.

SURGEON FREDERICK HAROLD REES, R.N., recently reported as wounded in the Dardanelles died of his wounds on 21st June. He was the elder son of Dr. Alfred Rees of Cardiff, was educated in the Cardiff Intermediate School, and at University College, London, and took the M.B. and B.S. London in 1912. He was appointed a temporary surgeon in the Navy on 9th February 1915, and sailed for Malta in April. At the time of his death he was attached to the Drake battalion.

CAPTAIN HENRY JAMES GORRIE, R.A.M.C. (T.F.), was educated at Dundee and in the School of the Royal College of Surgeons, Edinburgh. He took the triple qualification of the Scottish College, and also the L.D.S. of the Edinburgh College in 1906 and was in practice at Dundee. He joined the 3rd Highland Field Ambulance, becoming Captain on 13th March 1913.

CAPTAIN ERIC DALRYMPLE GAIRDNER, R.A.M.C. (T.F.), wounded in the Dardanelles is a son of the late Professor Sir William Gairdner, of Glasgow. He was educated at Edinburgh, Glasgow, and Dundee and took the M.B. and B.Ch. at Glasgow in 1902. After qualifying he filled the posts of resident physician and resident surgeon at Glasgow Royal Infirmary and resident surgeon of Glasgow maternity hospital and then went into practice at Ayr, where he is surgeon to Ayr County hospital. He joined the 5th battalion, Royal Scots Fusiliers as medical officer and Lieutenant, on 15th July 1906.

SURGEON CAPTAIN ROBERT WALSH BRANTHWAITE, R.A.M.C. (T.F.) of the 15th battalion, London Regiment (the Civil Service Rifles), wounded in Flanders was educated at Charing Cross hospital, and took the L.S.A. in 1880, the M.R.C.S. in 1881, the L.R.C.P. London in 1884, the M.D. of Brussels and the D.P.H. of the London Colleges in 1896. After acting as house surgeon of Macclesfield Infirmary, assistant medical officer of Parkside Asylum, and resident medical superintendent of the Dalrymple house for inebriates he entered the service of the Home Office, where he was lately Inspector under the Inebriate Acts, also Inspector of Prisons under these Acts, and medical adviser to the reformatory and industrial school department. He entered the medical department of the Territorial forces as Lieutenant on 2nd April 1904. Why this particular battalion like the Guards, keeps up the compound title of Surgeon Captain for its medical officer, is not evident, but it is so given in the *Army List*.

LIEUTENANT DANIEL BLAIR, of the 4th battalion, Black Watch, wounded in Flanders on 29th June, is a member of the medical profession. He was educated at Glasgow and Philadelphia, took the L.D.S. of the Glasgow college in 1907, and the degree of Doctor of Dental Surgery at Pennsylvania University in 1902, and is in practice at Harick. His commission as Lieutenant is dated 24th October 1914.

LIEUTENANT WILLIAM REGINALD PRYN, R.A.M.C., reported as having died in France in the casualty list of 7th July, was educated at Guy's, took the M.R.C.S. and L.R.C.P. London in 1914, and after serving as house surgeon of the Royal Surrey Cottage Hospital, Guildford, took a temporary commission on 10th August 1914.

LIEUTENANT HUGH PIERCE, R.A.M.C., wounded in Flanders, was educated at Liverpool, where he took the M.B. and B.Ch. in 1912, as well as the M.R.C.S. and L.R.C.P. London in 1911. After filling the post of house surgeon of the Royal Infirmary, Liverpool he was acting as house physician of the Children's Infirmary, Myrtle Street,

Liverpool, before the war broke out, when he took a temporary commission as Lieutenant in the R.A.M.C. from 17th September 1914.

LIEUTENANT COLONEL WILLIAM BRIDGETT PRITCHARD, R.A.M.C. (T.F.), died of wounds in the Dardanelles, was educated at Owen's College, Manchester, and took the M.R.C.S. and L.R.C.P. London in 1890. After serving as assistant medical officer and house surgeon at the Worcester Royal Infirmary, he went into practice at Manchester where he was medical officer and public vaccinator of No. 4 district, Chaiton Union, and honorary anesthetist to the Cancer Pavilion and to the Victoria Dental Hospital. His commission as Lieutenant Colonel in the second East Lancashire Field Ambulance (head quarters Manchester), is dated 18th November 1911.

CAPTAIN WILLIAM JOHN HARRISON, R.A.M.C. (T.F.), wounded, was educated at Durham and St. Thomas' hospital, took the M.B. and B.S. Durham in 1899, and the M.R.C.S. and L.R.C.P. London in 1902, and after serving as resident medical officer of the London Temperance Hospital, went into practice at Newcastle, where he was assistant surgeon to the Newcastle Throat, Ear, and Nose hospital. He joined the 6th battalion of the Northumberland Fusiliers as Lieutenant and Medical Officer on 29th April 1910, becoming Captain on 29th October 1913.

LIEUTENANT HEERAJEE JEHANGIR MANOCKJEE CURSETJEE, I.M.S., wounded in the Dardanelles, was born on 14th August 1885, educated at the Grant Medical College at Bombay, at Cambridge and at the London Hospital, and took the M.R.C.S. and L.R.C.P. London in 1911. After acting as resident medical officer of the Relgrave Hospital for Children, London, he entered the I.M.S. on 27th January 1912 and, when wounded, was attached to the 14th Sikhs, a regiment which has lost very heavily in the Dardanelles.

CAPTAIN JOHN FITZGERALD GWYNNE, R.A.M.C., killed in Flanders on 9th July 1915 was born in August 1889, the eldest son of the late Dr. Charles Gwynne, of Sheffield, and educated at Sheffield University, where he took the M.B. and B.Ch. in 1911. After filling the posts of resident medical officer of Sheffield Royal Infirmary, and assistant medical officer of the Southwark Union Infirmary at East Dulwich, he entered the R.A.M.C. as Lieutenant on 30th January 1914, and was promoted to Captain on 30th March 1915, when all the Lieutenants of the R.A.M.C. got a step of promotion for war service.

LIEUTENANT FREDERICK COLIN BENTZ, R.A.M.C. (T.F.), wounded in the Dardanelles was educated at Owen's College, Manchester, and took the M.B. and B.Ch. of the Victoria University in 1913. On 15th August 1914 he was appointed Lieutenant in the second East Lancashire Field Ambulance. The Commanding Officer of this Ambulance, Lieutenant Colonel W. B. Pritchard, at the same time received the wounds of which he died.

LIEUTENANT CHARLES PATRICK VALENTINE MCCORMACK, R.A.M.C., wounded in Flanders, took the L.R.C.P. I and L.R.C.S. I in 1912, and got a temporary commission in the R.A.M.C. on 20th January 1915.

The following awards of the D.S.O., Military Cross, and Distinguished Conduct Medal were announced on 3rd July —

D.S.O. — Major E. J. O'Neill, New Zealand Medical Corps.

D.S.O. — Captain A. G. Butler, Australian Army Medical Corps.

Military Cross — Temporary Lieutenant J. M. Gillespie, R.A.M.C.

Military Cross — Temporary Lieutenant J. H. MacNichol, R.A.M.C.

Military Cross — Assistant Surgeon E. B. Messimer, I.S.M.D.

Distinguished Conduct Medal

Staff Sergeant H. Jackson, Australian Army Medical Corps.

Private L. W. Burnett, Australian Army Medical Corps.

Corporal J. W. Jones, P.A.M.C. (T.F.)

Private A. Cook, R.A.M.C. (T.F.)

Lance Corporal G. Steedman, New Zealand Medical Corps.

Private T. Stockdill, stretcher bearer, Canterbury battalion, New Zealand.

THE following is the official list of British officers, Prisoners of War, who have been repatriated. The wounded officers have been admitted to Queen Alexandra's Military Hospital, Millbank.

A list of the men will be issued as soon as their names are verified.

WOUNDED

Baker, Lieut. W. G. S., Connaught Rangers.
Lerby, Capt. M. P., Royal Army Medical Corps.

UNWOUNDED

All are officers of the Royal Army Medical Corps, unless otherwise described

| | |
|---------------------------------|-----------------------------|
| Beaman, Capt W K | Hepper, Capt J E |
| Brown, Lieut A J | Hills, Lieut H W |
| Brunskill, Major J H | Jackson, Lieut J L |
| Butler, Lieut P P | Johnson, Capt B |
| Cahill, Capt R | Kelly, Major H B |
| Collingwood, Lieut Col P H | Long, Major H W |
| Corbett, Capt D M | Lynch, Capt J P |
| Croker, Capt W P | Meaden, Capt A A |
| Crymble, Capt W | Middleton, Capt E M |
| Davies, Lieut E | Mitchell, Capt W |
| Davy, Capt P C T | O'Carroll, Capt A D |
| Dolbey, Capt R V | O'Rourke, the Rev B G (C F) |
| Egan, Capt W | Perry, Capt H M J |
| Elvey, Capt P G M | Pollard, Capt A M |
| Furness, Major J C | Preston, Lieut A |
| Fraser, Capt A E G | Robertson, Capt H G |
| Garland, Capt F J | Rose, Capt A M |
| Gillespie, Lieut J M | Routh, Capt L M |
| Greig, Staff Surgeon L L (R N) | Stenhouse, Lieut J A (F F) |
| Hales, the Rev J T (C F) | Stevenson, Capt G H |
| Hart, Capt W M (Canadian A M C) | Thompson, Lieut Col H N |
| Hayman, Lieut J R | Thompson, Capt W I |
| | Winter, Capt H G |

THE RIGHT HONOURABLE AUSTEN CHAMBERLAIN, the New Secretary of State for India, accompanied by Sir James Dunlop Smith, Political Secretary, India Office, and Sir Walter Lawrence inspected the Indian hospitals in Brighton in July, the Kitchener hospital on 3rd July, the Pavilion and Yule Place hospitals on 4th July. He made a long visit, going into almost all the wards, and talking, through an interpreter, to many of the patients.

MAJOR CLARENCE BARRYMORE HARRISON Madras Medical Service, was placed on temporary half pay, on account of ill health, on 7th June 1915. He was born on 9th February 1871, educated at Glasgow, where he took the M B and C M in 1894, and entered the I M S as Surgeon Lieutenant on 29th January 1896, becoming Captain on 29th January 1899, and Major on 29th January 1908. He served on the North West Frontier of India in 1897-98, and in Tiah, taking part in the actions at the Malakand, and Aihanga and Sampagh Passes, and receiving the medal with two clasps. His last appointment was that of District Sanitary and Medical Officer of Madura, but for the past year he had been on sick leave.

FOR the thirteen days, 18th to 30th June inclusive, the number of casualties among officers reported reached nearly one thousand, viz., 618 in Flanders, 331 in the Dardanelles, and five in other seats of war, total 954. These casualties may be tabulated as follows—

| | Killed | Died | Wounded | Missing | Prisoners | TOTAL |
|-------------------------------------|------------|----------|------------|-----------|-----------|------------|
| <i>Dardanelles</i> | | | | | | |
| Naval officers | 5 | | 9 | 1 | | 15 |
| Military officers | 76 | | 113 | 11 | | 200 |
| Australians | 18 | | 53 | 2 | | 73 |
| British officers, Indian troops | 16 | | 8 | | | 24 |
| Indian officers | 6 | | 13 | | | 19 |
| <i>Flanders</i> | | | | | | |
| British officers | 164 | | 351 | 26 | 6 | 547 |
| Canadians | 17 | | 35 | 3 | 7 | 62 |
| British officers, Indian troops | 2 | | 4 | | | 6 |
| Indian officers | | | 3 | | | 3 |
| <i>Egypt</i> | | 1 | | | | 1 |
| <i>Persian Gulf</i> | | 1 | | | | 1 |
| <i>Camerouns</i> | 1 | | | | | 1 |
| <i>East Africa, Indian officers</i> | 2 | | | | | 2 |
| TOTAL | 307 | 2 | 589 | 43 | 13 | 954 |

Among the 351 wounded in Flanders are comprised eighteen cases of gas poisoning, and among the 547 army casualties in Flanders is included one naval officer, Flight-Lieutenant Warneford, the destroyer of the Zeppelin who was accidentally killed while flying at Paris. The names of sixteen medical officers appear in these lists: eight in the Dardanelles—Major J C Taylor, R A M C (T F), killed; Major O R Eamon, R A M C (T F), Captain H Henry, R A M C (T F), Captain C C Fitzgerald,

R A M C (T F), Surgeon F H Rees, R N, Lieut H Seddon, R A M C (T F), and temporary Lieutenants W J Maloney and A J McClure, R A M C, wounded, seven in Flanders, temporary Lieutenant G M M Fleming, R A M C, killed, Lieutenants W W Admison, R A M C (T F), H L Gauntlett, R A M C (T F), J Cavin and W H Shephard, of the R A M C special reserve, temporary Lieutenants J Cowan, R A M C, wounded, and Lieutenant R D D Brownson, R A M C, special reserve, suffering from gas poisoning, and one in Egypt, Lieutenant (temporary) E A Wright, R A M C, died of septic poisoning. To these should be added the names of two medical men killed in Flanders, serving as combatant officers, Lieut Colonel J W Jessop, commanding the 4th battalion of the Lincoln regiment, and Lieutenant A C Clifford, of the 3rd Dragoon Guards.

LIEUTENANT HARRY LEON GAUNTLETT, R A M C (T F) was educated at King's College, where he was Warneford medical scholar and Sambrooke medical exhibitioner. He took the M R C S and L R C P London in 1909, and subsequently filled the posts of house accoucheur, house physician for women and children, and house surgeon of the ophthalmic department at King's College Hospital, after which he went into practice at Bloxham Banbury Oxfordshire where he was medical officer of Bloxham dispensary. He joined the 4th battalion of the Oxford and Bucks Light Infantry as Medical Officer, and Lieutenant on 1st April 1913.

LIEUTENANT JOHN MARCHBANK GILLESPIE, R A M C, who was reported missing a week before, was stated to be a prisoner of war in the casualty list of 18th June. He took the M B and Ch B at Edinburgh in 1911, and was subsequently resident medical officer at Swansea General Hospital. He must have taken a temporary commission quite recently, as his name is not in the May Army List.

LIEUTENANT COLONEL JOHN WILLIAM JESSOP, commanding the 14th battalion, Lincoln regiment, was killed in action, in France on—June 1915. He was educated at Bait's and took the M R C S and L R C P London in 1889, after which he settled in practice at Honecastle, in Lancashire, where he was surgeon to the Post office, and medical officer of Honecastle dispensary, Union District, and workhouse. He joined the Volunteers as a Surgeon Lieutenant, subsequently becoming Captain of the Honecastle company, and on 14th September 1910 became Lieutenant Colonel of the 4th (Territorial) battalion of the Lancashire regiment.

SECOND LIEUTENANT ANTHONY CLIFFORD CLIFFORD, of the 3rd Dragoon Guards, was killed in Flanders in June. He was educated at Guy's and took the M R C S and L R C P London in 1913. He received a commission as 2nd Lieutenant reserve of officers on 18th May 1912 and on 6th August 1914 joined the third reserve regiment of cavalry.

CAPTAIN HOWARD HENRY, R A M C (T F), wounded in the casualty list of—June, was educated at Trinity College, Dublin where he took the B A in 1897 the M B B Ch, and B A O in 1910, and the M D in 1906. After serving as medical and surgical resident at the Adelaide and Steven's hospitals Dublin he went into practice at Blackburn. He received a commission as Lieutenant and medical officer in the 4th battalion of the East Lancashire regiment on 21st July 1910.

LIEUTENANT WILLIAM JOSEPH MALONLY, R A M C, was educated at Edinburgh, Paris, and Munich. He had a very distinguished career at Edinburgh, where he graduated as M B, Ch B with first class honours in 1905 winning the Houldsworth research scholarship in Pharmacology, the Ettles scholarship conferred on the best graduate of the year and the McCosh graduate scholarship. He took the M D, with commendation, in 1907, and is also a Fellow of the Royal Society of Edinburgh and held the Crichton Fellowship in Clinical Neurology and Psychiatry. After qualifying, he acted as resident casualty officer at the hospital for sick children in Great Ormond Street, London, senior house physician of Bradford Royal Infirmary, and senior house physician of the National hospital for paralysis and epilepsy London. He then settled in New York, where he was, until recently, adjunct professor of nervous and mental diseases at the post graduate hospital, and physician to the neurological hospital, both in New York. He translated Wickman's *Acute Polyomyelitis* in 1912 and is the author of many papers on nervous and mental diseases. He took a temporary commission as Lieutenant in the R A M C on 6th September 1914 and when wounded in the Dardanelles was attached to the 4th battalion, Worcestershire regiment.

MAJOR JAMES CRAIK TAYLOR, R A M C (T F) attached to the 4th Royal Scots Fusiliers, was reported in the casualty list of 22nd June as having died of wounds at the Dardanelles. He was educated at Anderson's College, Glasgow and at Glasgow University, where he took the M B and Ch B in 1896. He served in the South African war in 1900-01 in the operations in the Orange Free State and Orange River Colony, including the actions at Houtnek and Wittebeigen, and gained the Queen's medal with two clasps. On his return he went into practice at Newlands, Glasgow, where he had been physician

to the Stewariton hospital. He was the author of a small work, *Diet Charts for use of Physicians*. He entered the medical department of the auxiliary forces as Lieutenant on 4th February 1899, becoming Captain on 17th February 1906, and Major on 6th November 1914. He also held the rank of Honorary Lieutenant in the army from 21st December 1901.

MAJOR OCTAVIUS ROBERTS ENXION, R A M C (T F) was educated at St Mary's, and took the M R C S and L R C P London in 1898. After filling the post of resident casualty officer at St Mary's, he went into practice at Burwell in Cambridgeshire, where he was medical officer of the Port office, and medical officer and public vaccinator of No 4 district of Newmarket Union. He was serving in the East Anglian Field Ambulance, whose headquarters are at Ipswich, and attained the rank of Major on 26th September 1914.

CAPTAIN CHARLES CONWAY FITZGERALD, R A M C (T F) joined the 7th Lancashire Fusiliers as Lieutenant on 23rd March 1912. He took the Scottish triple qualification in 1906, and the D P H Dublin in 1910. After serving as resident medical officer of Salford Union, and assistant medical superintendent of Salford Borough fever hospital, he became assistant medical officer of health, Salford.

LIEUTENANT DELVINE BELL, R A M C, took the M B and Ch B at Edinburgh in 1911. He was resident medical officer of the General Hospital, Swansea, when the war broke out, and received a temporary commission as Lieutenant, R A M C on 5th October 1914.

LIEUTENANT WALLACE WRIGHT ANDERSON, R A M C (T F), was educated at Glasgow, where he took the M B and Ch B in 1907. After serving as house surgeon at Glasgow Royal Infirmary, he became demonstrator of pathology at Leeds University. He joined the second West Riding Field Ambulance, headquarters Leeds, as Lieutenant on 10th September 1914.

LIEUTENANT GEOFFREY MONTAGUE NEASON FLEMING, R A M C, killed in Flanders, took the M B, Ch B at Dublin University in 1913, and got a temporary commission as Lieutenant in the R A M C, from 16th August 1914.

SURGEON FREDERICK HAROLD KEES, R N, Drake battalion, was educated at Cardiff and at University College, London. He took the M B and B S London, in 1912.

LIEUTENANT JOHN COWAN, R A M C, was educated at the Victoria University, Manchester, where he took the M B and Ch B with distinction in 1911. He joined the Special Reserve of the R A M C as Lieutenant on 11th September 1914, and was called out for duty on 6th November 1914.

LIEUTENANT ROGER DAWSON DAWSON DUFFIELD BROWNSON, R A M C, was educated at Cambridge and at London hospital, and took the B A Cambridge in 1905, the M B and B C in 1911, and also the M R C S and L R C P, London in 1906. After acting as emergency officer, London hospital, and chemical assistant at the Great Ormond Street hospital, London, he went into practice at Hampstead, and was honorary surgeon to the Linen and Woollen Drapers' Institute. He joined the Special Reserve of the R A M C, on 31st August 1914, and was called out for duty on 30th September 1914. He was serving with the 1st Norfolk regiment in Flanders, when attacked by gas poisoning.

LIEUTENANT HAROLD SEDDON, R A M C (T F) wounded in the Dardanelles, was educated at Liverpool University, where he took the M B and Ch B in 1912. He joined the first West Lancashire Field Ambulance, headquarters Liverpool, as Lieutenant on 1st February 1914, and was called out for duty on 11th August 1914.

LIEUTENANT ALBERT JOHN MCCLURE CHESNEY MORRISON, R A M C, wounded in the Dardanelles, took the M B and Ch B at Edinburgh in 1913, and got a temporary commission as Lieutenant from 21st October 1914.

LIEUTENANT WILLIAM HOPPER SHEPARD, R A M C, took the M R C S and L R C P London in 1914. He joined the Special Reserve of the R A M C on 18th September 1914, and was called out for duty on 7th October.

MAJOR W P DILLON, of the Canadian Army Medical Corps, was killed in Flanders on 4th May. His commission was dated 22nd September 1914. He had a Canadian qualification, his name is not in the *Medical Register* for 1915.

LIEUTENANT ERIC ALFRED WRIGHT, R A M C, died on 20th June at Alexandria, of septic poisoning, contracted in operating on a septic case aged 36. He was the only son of Dr and Mrs Wright of Mountsovel, Romford and was educated at Felsted School and at Selwyn College Cambridge, where he took the B A in 1899, the M B and B C in 1904, and the D P H, in 1905, also taking the M R C S and L R C P London in 1903. He was a Sergeant in the London Scottish, went with that corps to France, and was with them in their first action at Messines. When Captain Macnab their medical officer was killed in action, he became surgeon to the battalion. Shortly after he was invalided home and took a temporary commission as Lieutenant in the R A M C from 16th December 1914. In March he was sent to Alexandria, where he was serving in the 15th General Hospital. After qualifying he served as assistant and senior medical officer at the North West London hospital and as house surgeon to St Peter's hospital for stone, and then

went into practice at Romford, Essex, where he was medical officer of the Hoinchurch cottage homes, medical officer to the Port office, and certifying factory surgeon.

SURGEON MAJOR WILLIAM FULLERTON MACTIER, Bengal Medical Service, retired, died at Kinnessburn, St Andrews, on 19th June 1915, aged 92. He was born on 1st October 1822, the son of Anthony Mactier, of Dunnis House, Aberdeen, first Commissioner of the Court of Requests, Calcutta, was educated at Edinburgh where he took the M D in 1843, and entered the I M S as Assistant Surgeon on 3rd December 1844, being nominated by Sir R Campbell, Bart. He became Surgeon on 29th March 1853, Surgeon Major on 3rd December 1864, and retired on 24th September 1866, nearly half a century ago. His whole service was spent in military employment, with the exception of two years, 1853-1855, when he was in medical charge of Simla. During the Mutiny he was personal surgeon to two Commanders in Chief, Generals Anson and Sir Henry Burnard. He had a fine record of war service, Sutlej campaign or first Sikh war, 1845-46, with 42nd Native Infantry, actions of Mudki, Aliwal, and Sobroon, medal with two clasps, second Sikh war, on Punjab campaign, 1848-49, actions of Ramnagar, Saidullapur, and Chilianwalla, medal with clasp, Mutiny 1857-58, siege of Delhi, mentioned in despatches, medal with clasp. In General Sir Archdell Wilson's despatch in G O of 5th November 1857, published in the *London Gazette* of 15th December 1857, is stated— "Amongst these medical officers whose unwearied zeal and superior ability have come prominently before me are Assistant Surgeon W F Mactier, M D, on the personal staff of the late Commander in Chief." Surgeon Major Mactier was the senior officer of the Indian Medical Service, with the possible exception of Surgeon Major H B Hinton, if the latter is still really alive. One of his sons Major H M Mactier, 39th Garhwal Rifles, was killed at Neuve Chapelle, another son, Dr W B Mactier, is in practice at St Andrews.

THE Director of Medical Services in India has circulated the following satisfactory letters on the work done by the medical departments of the Indian army both in Flanders and in the land of Mesopotamia—

"It is with very great pleasure that I forward, for information, a copy of a telegram received by His Excellency the Commander in Chief from the General Officer Commanding Force "D," regarding the courage and devotion to duty displayed by all ranks of the Medical Services in the recent severe fighting near Busrah. It is with equal satisfaction I add that His Excellency in acknowledging this telegram expressed his pleasure at the excellent work done and asked that an expression of his high appreciation of their devotion to duty should be conveyed to all concerned.

I know from what I saw in Egypt and from the many letters I have received from officers serving with other Forces overseas, that the same courage and devotion to duty is displayed everywhere. It will be remembered that Field Marshal Sir John French communicated to His Excellency the Viceroy a message from General Sir James Willcocks, commending the work of the Field Ambulances, at Neuve Chapelle, and I am sure that every one will be glad to learn that during that recent great battle, the Field Ambulances carried out their duties under the heaviest fire with untiring zeal, the utmost coolness and the same intrepidity that distinguished their comrades in the Persian Gulf."

From—The General Officer Commanding, Force "D," Basrah.

10—The Commander in Chief in India, Simla.
"I am delighted to inform Your Excellency that I have received from all quarters glowing accounts of the conduct of the Medical Officers, Assistant Surgeons, Sub Assistant Surgeons and Army Bearer personnel of the Shaiba Force and of the Line of Communication. In action they displayed great bravery, while throughout the strenuous and unremitting labour of the last six days and nights their devotion to duty has evoked universal praise. Over 1,100 wounded, including those of enemy, have been attended to and evacuated to the General Hospital at the Base under conditions of unusual difficulty and strain on the medical personnel who have nobly done their duty."

The following extracts are from the despatches on the work of the Indian Expeditionary Force "D" in Mesopotamia—
Captain D Arthur, I M S, was particularly conspicuous in attending Captain Daunt and other wounded when exposed to heavy fire and throughout the action.

Captain H E Shott, I M S, in the operations from Mezeria on the left bank of the Tigris on 30th January 1915, displayed great devotion and courage in attending to wounded in the open, in face of rifle fire at comparatively close quarters."

The following departmental warrant officers, non commissioned officers, and men have rendered valuable service, for which I recommend suitable departmental promotion in each case in the order named—

Medical Services

No 954 1st Class Sub Assistant Surgeon Mohun Lal
3rd Class Assistant Surgeon D A Cotton

1st Class Sub Assistant Surgeon Gunga Ram Huiba
3rd Class Assistant Surgeon S C Raphael
3rd Class Assistant Surgeon H Vincent
1st Class Sub Assistant Surgeon V Sambasiva Nayakar
Colonel P Hehir, M D, as senior medical officer has done much to promote the general efficiency of the Force by his unceasing care for the physical welfare of the troops and followers, and for the treatment of the sick and wounded. He possesses great administrative ability and is an extremely valuable officer.

The Hospital (June 12th) writes —

"The Indian Medical Service has lost another good officer by the death of Major James Woods, whose name appeared in the casualty list recently. An Edinburgh University man, he graduated in medicine and surgery in 1901. Major Woods was fortunate in seeing plenty of active service during his Indian career thus, in Frontal operations during 1908 he was present at Mohmand, Matta, and Kargha, being mentioned in despatches and awarded the medal and clasp for his services in the field. After various other experiences, Major Woods found himself in civil employ in the Punjab at the outbreak of war, and after mobilisation became attached to the 39th Garhwal Rifles, with whom he continued until his work was ended, at the age of thirty eight, during the severe fighting of the past few weeks."

We regret that in our list of Birthday Honours we omitted the name of Rao Sahib P L Sabagoria, of the Ahmedabad B J Medical School.

RETIRED Captain W Forrester, I S M D, Civil Surgeon, Sitapur, to hold visiting medical charge of Kheri as a temporary measure, *vice* Military Assistant Surgeon H C Thompson.

LALA MATHRA DASS, Assistant Surgeon, made over charge of the duties of Superintendent of District Jail at Gurdaspur to Lala Maya Dass, Assistant Surgeon, on the afternoon of the 25th May 1915.

MR H V W COX, Assistant Surgeon, made over charge of the duties of Superintendent of the District Jail at Gurdaspur to Lala Mathra Dass, Assistant Surgeon, on the afternoon of the 12th May 1915.

DR R W FISHER, M B, D P H, Director, Vaccine Institute, Belgaum, is granted privilege leave for three months in combination with special leave for three months from the 10th July 1915 or the subsequent date on which he may avail himself of it.

HIS EXCELLENCY the Governor of Bombay in Council is pleased to appoint Major W W Brown, R A M C, to act as Civil Surgeon, Ahmednagar, in addition to his military duties *vice* Lieutenant A K Sinha, M B, I M S, transferred pending further orders.

HIS EXCELLENCY the Governor of Bombay in Council is pleased to appoint Dr K S Mhaskar, M D (Bom), D P H (Lond) D T M & H (Cantab), to act as Director, Vaccine Institute, Belgaum, during the absence on leave of Dr R W Fisher, M B, B Ch, D P H (R U I), pending further orders.

UNDER the provisions of article 260 of the Civil Service Regulations, privilege leave for three weeks is granted to Major F A L Hammond, I M S, Civil Surgeon, Maymyo, with effect from the date on which he may avail himself of it.

CAPTAIN A M DICK, I M S, is appointed to hold collateral charge of the Civil Surgeoncy at Maymyo during the absence of Major Hammond.

MAJOR R D SAIGOL, I M S, in medical charge, 79th Carnatic Infantry Regiment, Rangoon, is appointed to hold collateral charge of the duties of the Ophthalmic Surgeon, General Hospital Rangoon.

THIS department Notification No 314, dated the 5th October 1914, so far as it concerns the appointments of Messrs Narasimhaswami A Baxi, I M and S (Bom), Ram Narain Sud M B, B S (Pun), and Guidas Ram Vohra L R C P and S (Edin) L F P and S (Glas) D P H (Edin), I M (Dub), to be temporary Civil Assistant Surgeons in Burma, is hereby cancelled.

UNDER the simple heading "No 641, the undermentioned appointments are made"—the following names appear in the *Gazette of India* 10th July. The appointments refer to the operations in Mesopotamia.

Deputy Director of Medical Services

Surgeon General H G Hathway, C B, Army Medical Service. Dated 17th April 1915.

Assistant Directors of Medical Services

Colonel P Hehir, Indian Medical Service. Dated 6th November 1914.

Colonel H M Adamson, Army Medical Service. Dated 18th April 1915.

Deputy Assistant Directors of Medical Services

Lieutenant Colonel H O B Browne Mason, Royal Army Medical Corps. Dated 6th November 1914.

Captain W Haywood-Hamilton, Indian Medical Service. Dated 17th April 1915.

Major J H Horton, D S O, Indian Medical Service. Dated 21st April 1915.

Lieutenant Colonel F Harvey, Royal Army Medical Corps. Dated 20th May 1915.

THE King has approved the promotion of the under mentioned officer of the Indian Medical Service —

Temporary Lieutenant to be Temporary Captain—

James Robert Hall Walker, M D. Dated 22nd December 1914.

THE King has approved the grant of the temporary rank of Lieutenant in the Indian Medical Service to the under mentioned gentleman —

Jehangir Pestonjee Canteenvalla. Dated 15th November 1914.

SENIOR Assistant Surgeon and Honorary Captain Richard Shaples is retained in the service after the age of 55 years, with effect from the 8th June 1915, until further orders, and will be borne as supernumerary in his rank and grade.

CAPTAIN R BROWN, I S M D, Civil Surgeon of Sambalpur, is appointed until further orders to act as Civil Surgeon of Champaran.

THE services of Major J Masson, M B, F R C S F, I M S, are placed temporarily at the disposal of His Excellency the Commander in Chief in India.

COLONEL H HENDLEY, M D, I M S, Deputy Director, Medical Services in India, is appointed to be Inspector General of Civil Hospitals, Punjab, with effect from the 12th July 1915.

Colonel Hendley is succeeded by Colonel T E Dyson and Colonel Fooks, I M S, is appointed P M O, in Burma.

CAPTAIN T F OWENS, I M S, Chemical Examiner and Bacteriologist to the Government of Burma is appointed to hold additional charge of the duties of Police Surgeon and Pathologist Rangoon General Hospital, with effect from the 14th June 1915.

THE Governor General in Council is pleased to sanction the following promotions in, and appointments to, the order of British India, supernumerary to the authorised establishment, for distinguished service in the field. Dated 4th August 1915 —

To the 2nd class, with the title of Bahadur — 1st Class Senior S A S Tilok, I S M D.

THE Governor General in Council is pleased to sanction the award of the Indian Distinguished Service Medal to the undermentioned for good services rendered by them whilst serving with the Expeditionary Force in Mesopotamia —

No 2939 Ward Orderly Nabi Bux, 110th Infantry of "E" Section, No 3 Field Ambulance.

No 911 Havildar Ram Lal Singh, 2nd (Q V O) Rajputs, attached "D" Section, No 2 Field Ambulance.

THE following officers of I M S and of Indian Medical Department have been mentioned in despatches by Sir John French —

Indian Medical Service

Lieutenant F J, Anderson, 111th Indian Field Amb.

Major P P Atal (killed).

Lieutenant Colonel H J K Bamfield.

Major R M Barron, 113th Indian Field Amb.

Major H Boulton, D A D M S, Meerut Divn.

Lieutenant Colonel C H Bowle Evans, Lucknow Casualty Clearing Stn.

Lieutenant P F Gow.

Lieutenant Colonel H C R Hime, R A M C (attd).

Major H M H Melhuish, 112th Indian Field Amb.

Major R A Needham.

Major W H Odium, 117th Indian Field Amb.

Captain J S O'Neill.

Lieutenant Colonel F R Ozzard.

Captain D H Rai (attd 6th Jats).

Captain C H Reinhold, 111th Indian Field Amb.

Captain A L Sheppard.

Captain John Taylor (attd 1/39th Garhwal Rifs).

Major W L Trafford.

Lieutenant Colonel F Wall.

Lieutenant Colonel W W White, 128th Indian Field Amb.

Indian Subordinate Medical Department

Senior Assistant Surgeon and Honorary Lieutenant K G S Macqueen.

1st Class Assistant Surgeon J A H Holmes.

1st Class Assistant Surgeon W J S Maize.

2nd Class Assistant Surgeon M C R Rodgers.

3rd Class Assistant Surgeon B J Bouche.

3rd Class Assistant Surgeon A W Cummins.

3rd Class Assistant Surgeon H A Fox.

3rd Class Assistant Surgeon A G L Fraser
 4th Class Assistant Surgeon A F J D'Arcy
 4th Class Assistant Surgeon E R Hill
 4th Class Assistant Surgeon J W Perkins
 1st Class Senior Sub Assistant Surgeon Ganu Shankar
 1286 1st Class Sub Assistant Surgeon S Jesudasan
 529 1st Class Sub Assistant Surgeon Lachmann Das
 903 1st Class Sub Assistant Surgeon Muhammad Raza Khan
 997 1st Class Sub Assistant Surgeon Narayn Prasad Sukul
 933 1st Class Sub Assistant Surgeon Saligram
 379 3rd Class Sub Assistant Surgeon Ganpat Kanoo Rao Rane
 1362 3rd Class Sub Assistant Surgeon Raj Singh
 1333 3rd Class Sub Assistant Surgeon Upendra Kumar Ganguli

Indian Army

2nd Class Sub Assistant Surgeon Ramkishna Ganpat Shinde, 1st Batt 39th Garhwal Rifles
 Lieutenant H S Cormack, I M S 47th Sikhs

THE following Honours are gazetted —

Indian Medical Service

C M G —Lieut Col C H Bowle Evans and Lieut Col F Wall

D S O —Capt John Taylor

Military Cross —Capt J S O'Neill and Second class Sub Asst Surg Ramkishna Ganpat Shinde

Brevet Colonel —Lieut Col W W White

INDIAN MEDICAL SERVICE —Sir Philip Magnus asked the Secretary of State for India, on June 23rd, if he could state what was the exact amount of pay to officers in the Indian Medical Service who were now employed with the field ambulances of the Expeditionary Force in France, and by how much their pay had been increased since it was stated that the rate of pay in future would be somewhat in excess of unemployed pay, and whether any of the other grievances of which the Indian medical officers at that time complained had been redressed. Mr Chamberlain in a written reply stated that a lieutenant in the Indian Medical Service of two years' service employed with the Expeditionary Force in France who held no specific appointment received under the orders recently issued grade pay of Rs 350 a month and staff pay of Rs 100 a month, or Rs 450 a month in all as against unemployed pay of Rs 420 a month. A lieutenant of less than two years' service likewise received Rs 450 a month if at the time he left India he drew staff pay, otherwise he received unemployed pay. A captain of less than five years standing, who held no specific appointment in France received grade pay of Rs 400 a month and staff pay of Rs 100 a month, or Rs 500 a month in all, as against unemployed pay of Rs 475 a month. These rates were exclusive of exchange compensation allowance. With regard to the second part of the question the grievances represented in Sir Philip Magnus's two questions of April 27th (*British Medical Journal* May 1st p 777) were remedied by the decision of the War Office described in answer to those questions —B M J

THE services of Major G A Jolly, I M S, officiating civil surgeon, Gonda, are temporarily replaced at the disposal of the Government of India, Army department, with effect from the date he relinquished charge of his duties

LIEUTENANT COLONEL A W T BUIST I M S, made over executive charge of the duties of Superintendent of the District Jail at Ambala to Mr W C Gow, Magistrate 1st class, on the forenoon of the 28th June 1915

IN consequence of mobilization the services of Lieutenant W C M Charters I S M D, Civil Surgeon Karnal and Lieutenant W C L Deeks I S M D, Civil Surgeon Gujranwala are replaced temporarily at the disposal of the Director General Indian Medical Service, with effect from the forenoon of the 21st June 1915

LIEUTENANT COLONEL E E WATERS I M S has been granted by His Majesty's Secretary of State for India an extension of leave for three months

It will be remembered that Lieutenant Colonel Waters when Civil Surgeon of Howrah suffered for some months from a severe attack of blood poisoning, on his arrival in England he had a severe relapse but has recovered and is now convalescing at Cromer in Norfolk

LIEUTENANT COLONEL J FISHER D S O, Indian Medical Service (Bengal), an Agency Surgeon of the 2nd Class and Residency Surgeon, Jaipur, is appointed temporarily to hold visiting charge of the office of Agency Surgeon, Kotah and Jhalawar in addition to his own duties, with effect from the 3rd July, 1915, and until further orders

THE undermentioned are appointed to be temporary Lieutenants, I M S, subject to His Majesty's approval, with effect from the dates specified —

| | |
|-------------------------------|----------------|
| Sohrab Nussewanji Forbes, M D | 9th June 1915 |
| Maneck Bhojraj Patel | 9th June 1915 |
| Narain Rama Rao Ubhayar | 14th June 1915 |
| Narumon Byramji Mehta | 21st June 1915 |
| Said Shamsudin Mahamad, M D | 24th June 1915 |

HIS EXCELLENCY the Chancellor of the University of Bombay is pleased to renominate the following gentlemen to be Ordinary Fellows of the University with effect from the date of expiry of their present term of office —

Lieutenant Colonel W E Jennings, M D D PH, I C S, I M S, Dr Charles J J Fox, B Sc (Lond), Ph D

HIS EXCELLENCY the Governor of Bombay in Council is pleased to appoint Major J C S Oxley F R C S (E) I M S, to act as Civil Surgeon Karachi, in addition to his Military duties, *vice* Major A W Duke, F R C S (I), D I H, I M S, pending further orders

MAJOR H R NUTT, I M S, civil Surgeon, has been granted by His Majesty's Secretary of State for India an extension of six months' leave on medical certificate

SUPPON GENERAL J G MACFEELE, C B Army Medical Service, to be temporary Director, Medical Services in India, *vice* Surgeon General W Babbie V C C B C M C Army Medical Service, proceeded on field service to the Dardanelles dated the 8th July 1915

MAJOR P K CHITAI, I M S, 75th Carnatic Infantry, is appointed to be Cantonment Magistrate of the Cantonment of Baroda, in addition to his own duties, with effect from the 1st July 1915

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters, and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

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BOOKS, REPORTS, &c, RECEIVED —

Encyclopedia Medica Vol I Butterworth & Co, Calcutta
 Ballenger's Genito Urinary Diseases (2nd Edn) Butterworth & Co, Calcutta
 Claud Worth's Squint J Bale Sons and Danielson
 Edinburgh Royal College of Physicians Reports, Vol VIII
 G R Raus First Aid in Accidents
 Cochrane and Spradson's Guide to Use of Tuberculin Butterworth & Co (India), Calcutta
 Swanberg's Inter Vertebral Gramina in Man Chicago Sci Publish ing Co \$1.75
 Bengal Jail Administration Report
 Bengal Asylums Report
 Punjab Asylums Report
 Tresh's Simple Water Analysis (8th Ed) Price 2s 6d J & A Churchill
 Hongkong Medical Reports 1914
 Sir Clifford Allibott's Diseases of the Arteries, Macmillan & Co, 2 vols Price Rs 30
 R J M Buchanan's Forensic Medicine Livingstone & Co 5s
 G E Brooke's Aids to Tropical Medicine Bullire Tindal & Cox, Price 3s 6d
 The Report of the Imperial Japanese Navy

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Capt Green Armytage, I M S, France Lt Col Sir I Rogers I M S Calcutta, Lt Col D G Crawford I M S, Brighton, Major Overbeck Wright I M S Quetta Lieut M M Treton, I M S, Murree Lt Col H Smith, I M S, Amritsar Lt Col T Jackson, I M S, Bombay Lt Col F P Maynard I M S Calcutta Major Megaw, I M S Lucknow Major A Cochrane I M S, Bhowli, Major Moses I M S Calcutta Major Knapp I M S Rangoon, and Asst Surg S L Sarcar

Original Articles.

REPORT OF THE LADY HARDINGE HOSPITAL, BROCKENHURST, HANTS, ENGLAND, FROM 20TH JANUARY TO 15TH JUNE, 1915 *

BY

F F PERRY, LT-COL, I M S (retd)

NATURE OF HOSPITAL WORK

(a) *Surgical*—775 surgical cases were admitted, of which 483 were gunshot wounds, 92 various injuries and wounds including fractures, 87 frost-bites, the majority of which were slight, but there were a few which led to gangrene of whole or parts of the foot, 27 affections of the eye, 10 of the ear, 28 of the genito-urinary tract, 15 hæmorrhoids and fistula in ano, 15 of the lymphatic glands (majority tubercular), 9 abscesses, and the remainder from various surgical disabilities

Operations—136 were performed in the theatre and a number of minor ones in the wards. The majority of these were for the removal of foreign bodies—portions of shell shrapnel, and rifle bullets. 16 operations were performed for the removal of portions of bone, 3 fractures were wired and 4 large nerves were re-united, there were 2 trephining operations. Fortunately the number of amputations was small—4 fingers and 1 leg. Secondary hæmorrhage required ligature of the lingual artery in one case, and of first the external iliac and then the common iliac arteries in another. The remainder of the operations were those occurring in civil practice—removal of glands, hæmorrhoids, semi-lunar cartilage abscess, and such like.

At first sight it may appear that the surgical work was small as indicated by the number of operations, but it must be remembered first, that many of the cases had passed through one or more hospitals before admission here, and, secondly, that conservative surgery is the first principle of modern surgery. The majority of the cases were septic on admission, and considering the large amount of septic work in the theatre it is gratifying that all the operations on "clean" cases healed by first intention. Anæsthetics were administered on over 120 occasions, with no untoward effects.

(b) *Medical*—Bronchitis accounted for 156 cases, pneumonia, broncho-pneumonia and pleurisy, 30, rheumatism, 36. Tuberculosis of the lungs accounted for 26 cases—probably due not to recent infection but to lighting of old foci owing to debility and diminished powers of

resistance produced by the hardships of active service.

A noticeable feature among both medical and surgical cases has been the profound and prolonged shock from which many have suffered, as evidenced by mental instability, melancholia, dementia, neuasthenia, blindness, deafness, aphonia, anæsthesia, hyperæsthesia, paralysis, etc. Recovery in these cases is slow and prolonged.

Only 9 cases of malaria and 2 of dysentery were admitted. A few cases of mumps and German measles developed in the Hospital, but early isolation prevented any spread of these diseases.

(c) *Mortality*—8 due to septicæmia following wounds, 2 of tetanus following wounds, 4 of acute pulmonary affections, 6 to tubercular diseases, 3 to fevers (undetermined but probably of the enteric group), 1 due to secondary hæmorrhage, and 1 to acute nephritis.

(d) *X-ray work*—About 250 cases were examined—213 for shell and gunshot wounds, the remainder in cases of fracture, dislocations, pleurisy, and abnormal conditions of old standing. 152 photographic plates were taken. In over 60 cases metallic foreign bodies were localised, and in no case was there failure on the part of the surgeon to find the object. In 2 cases were rifle bullets localised in close proximity to the heart. Good results have followed the use of X-ray and electro-therapeutic treatment.

(e) *The Pathological Department* has done invaluable work.

| <i>Expenditure</i> | <i>Capital</i> | <i>Maintenance.</i> |
|----------------------|----------------|---------------------|
| | £ | £ |
| Up to 31st March | 5,189 | 6,642 |
| 31st March—15th June | 817 | 5,768 |
| Outstandings | 83 | 548 |
| TOTAL | 6,089 | 12,958 |

I understand that there are in addition certain charges due to the India Stores not yet settled, but I have no information regarding them.

LADY HARDINGE HOSPITAL, BROCKENHURST

STAFF

The Medical Officers and Nursing Staff are the same as given in my report up to the 31st March last. I have nothing to add to what I said in that report, but I would repeat that the Nursing Staff has done invaluable service and have done much in training members of the St John Ambulance Brigade, it is difficult to see how the hospital could have been "run" without the assistance of trained nurses.

ST JOHN AMBULANCE BRIGADE

A staff of 60 members of this body was deputed for duty at this hospital, of this number only five have been struck off the original establishment either on account of health or unsuitability.

* Sent with compliments of Sir Havelock Charles, G C V O
—a Report presented to Committee of Indian Soldiers' Fund

for the work, and these have been replaced by others. Superintendent J S Cox has been in charge since the work began and has also had charge of the Supply Depot. I cannot speak too highly of the manner in which he has performed his responsible duties, and I regret that he is compelled to resign. Sergeants O E Gane and W H J Daniells, Corporals A J Mace and A G Clarke have all been promoted to these ranks by me. They have assisted in disciplinary control and have performed other responsible duties to my entire satisfaction. Privates R S Cass, H W Bremer, C C G Hussey, W J Barker, and D F B German form the office establishment, and the work devolving on them has been heavy and responsible. To the remainder of the staff have been assigned ward duties. Taken as a body, I cannot speak too highly of the tone and general conduct of the men of the St John Ambulance Brigade. Before the hospital was opened for the reception of patients the first batch had to perform very heavy duties under severe climatic conditions, and, subsequently, the whole staff had to adapt itself to the working of a hospital with which every member was unfamiliar, and they have done their work well.

THE ST JOHN AMBULANCE ASSOCIATION A BRIEF HISTORICAL SKETCH

By O ST JOHN MOSES, M D, D Sc, F R C S (Ed),
MAJOR, I M S,

Honorary Secretary, Calcutta Bengal Provincial Centre

NEARLY three decades have gone by since the work of the St John Ambulance Association was first introduced into India, and nearly one since it was taken up in real earnest in this country. Several years have passed since I first interested myself in the Association and its workers, and I may be pardoned if I make the assertion that not a very large proportion of its innumerable workers have ever sought to know the origin of the institution or the way in which its wonderful work originally came into existence. During the past few years I have seen hundreds, nay thousands, of persons of both sexes, all colours, castes, and creeds, identify themselves with the work of the St John Ambulance Association, take up most zealously the study of First Aid to the Injured and Home Hygiene, acquire a standard of knowledge most creditable to themselves, and render the most useful service indeed to the sick and the injured. And yet, if asked what is the Association to which they belong and what the history of its origin, they could, I am sure, give no answer. Possibly they have never been enlightened on these points, perhaps in many cases they have not had the time or the facility to discover for themselves. Yet the truth remains,

that the majority of Ambulancers are without the least knowledge regarding the historical aspect of their subject and I make this a reason for writing a short paper on it. But then, if the ignorance of which I speak were confined only to the lay people who work for the Association in various capacities, I should have no justification whatever for writing such an article for a medical journal intended mostly for professional readers. It is perhaps sufficient excuse for me when I say that I have found a great many medical men in this country—medical men actually engaged as teachers and examiners in ambulance work—ignorant of the history of the Association under whose auspices they are rendering such valuable service, and ignorant of the origin of the work itself to which they are so devotedly interesting themselves.

The history of the St John Ambulance Association, which as such came into existence only in 1877, dates very far back, to the exciting times of the Middle Ages. Let the reader carry himself back to the eleventh, twelfth, and thirteenth centuries and recall the period of the Crusades, that series of military expeditions undertaken by some of the Christian nations of Europe with the object of wresting Jerusalem from the hands of the Mahomedans. Let him call back to mind the times which extended, with varying fortunes for the Crusaders, from the year 1096 when Godfrey of Bouillon led his first enterprise which resulted in the conquest of Jerusalem, the liberation of the Holy Land from the yoke of the Egyptians, and the exchange of his title of "Protector of the Holy Sepulchre" for that of King. I say, let him review the period extending from then till about 1271, which year saw the end of the eighth and last expedition, an unsuccessful one, under the leadership of Louis IX of France. This was a period of history pregnant with important events. They were times during which millions of lives were lost and countless treasures sacrificed to vain enterprises, and that without the dream of the Christian people being realized, without a Christian Kingdom being established at the city of the Holy Sepulchre.

It is on record that about the middle of the eleventh century, towards the end of the reign of William the Conqueror in England, a small band of Italian merchants from a little town in the province of Salerno received the permission of the Sultan to build a hospital within the walls of Jerusalem. To this hospital were admitted poor pilgrims who found their way to the city. In the last year of that century, in 1099, one of the founders of the hospital was appointed by Godfrey to be the first Master of that institution. His successor, one Raymond du Puy, nineteen years later, conceived the idea of forming the fraternity of the Hospital into a new Order of

Knighthood whose members should combine in themselves the triple functions of priest, soldier, and physician. This then formed the *fons et origo* of the great present-day work of aiding the sufferer both in peace and in war. The plan of the Master was highly approved and it soon achieved the greatest popularity, the sovereigns of Europe granting large gifts of land and of money, and many distinguished nobles placing their services at the disposal of the brotherhood. In this way a new Order came about, its members combining in themselves 'the piety of the priest, the devotion of the physician, and the enthusiasm of the soldier.' It is this Order, the Order of St John of Jerusalem, which, with its varied history, has survived through all these centuries, has played so important a part in human affairs, and which, in its present form, promotes more than ever the humanitarian objects with which it was founded.

The headquarters of the Grand Master ruling this brotherhood gradually shifted from Jerusalem to Acre, thence further westward to the island of Rhodes, until finally about the middle of the sixteenth century a transfer took place to Malta. Here the Knights remained and flourished until they were dislodged by Napoleon I in 1798. The sovereignty of the island of Malta was granted to the Knights of the Order by Charles V, Emperor of Germany, King of Spain, and Ruler of the Federation of States known as the Holy Roman Empire. The island was fortified by the Knights, who also improved their navy, whereby they were able to establish themselves protectors of all peaceful commerce against the pirates infesting the Levant and the Mediterranean generally.

The Knights of Malta at no time lost sight of their medical duties, and they built, equipped, and maintained for over 250 years a hospital which in fact is the present military hospital at Valetta. The Knights Hospitallers were soldier-priests who were gallant enough to recognise that the healing of a sick man's wounds was as knightly a service to perform as the vanquishing of a foe in the field. The Grand Master appointed special medical men whose duty it was to teach the Knights of the Order First Aid to the Injured.

Meanwhile, soon after the Order was founded in Jerusalem, it was introduced into England, where it established its headquarters at Clerkenwell, then a village near London, now almost the very heart of the City. In England it rapidly attained great power and influence, and the Priory at Clerkenwell became considerable in extent and was associated with a hospital, thus maintaining the medical character of the Knights of St John. The course which the fortunes of the Order ran in England was, however, not as smooth as it might have been for in 1540 Henry VIII dissolved the body as he did all similar fraternities.

In 1557 it was re-established under Philip and Mary. Later, Elizabeth confiscated all the property of the Order though she did not dissolve the Order itself. In 1830, during the reign of William IV, there was a final revival. His present Majesty, formerly Grand Prior, is now the sovereign of the Order. Since 1911 His Royal Highness the Duke of Connaught has been Grand Prior of the Order of the Hospital of St John of Jerusalem in England. St John's Gate with its numerous curiosities and its treasures, formerly occupied by the English Hospitallers at Clerkenwell, is now the home of the English Order.

So far, however, as the department of the work of the Order known as ambulance work is concerned, it did not claim the earnest attention of Europe until as late as the latter half of the nineteenth century. When Napoleon III started his 1859 campaign, the horrors of war as seen at Magenta and Solferino showed that manifestly the regular medical service of even what were then considered the largest armies of the world was utterly inadequate to cope with the large numbers of those wounded in modern warfare. Everything was found to be lacking—doctors, appliances, comforts, and even food and water. All that was sufficient for the army's needs in times of peace broke down in its working during the stress of war, owing to insufficiency. Enlightenment and considerations of humanity pointed clearly to the necessity for an organisation of voluntary medical aid societies to help the public medical services and to render prompt and adequate aid to the injured in times of emergency.

Public interest was soon aroused as the need for an organised movement on these lines was pointed out. Sympathy poured in on all sides, and Switzerland taking the lead, the Geneva Convention was held in 1864. This diplomatic conference of representatives of the leading European powers formulated international rules for the purpose of securing the neutrality in warfare of hospitals, ambulance parties, and others concerned in affording relief to the sick and the wounded, such aiders wearing the Geneva Cross, a red cross on a white ground, as a badge of office.

Regarding the "Sign of the Red Cross" the French legendary poem "Le Brassard" by Vte de Boielli, as translated by H. N. Ralston, relates how the Goddess of Pity who was

"winging her way

To the field of battle where a young soldier lay,"

and how,

"She smilingly sought out a white linen band,
- All untought in letters, yet deft was her hand,
She dipped in his life-blood her finger so fair,
And pressed the fine linen—lo! the Red Cross
was there!"

So that

"The Daughters of France, loving legend and charm,
Now wear the Red Cross as a sign on their arm."

Following the Geneva Convention, Ambulance and Red Cross Societies sprang up all over Europe, and in England they were always associated with the Order of St John.

In 1877 the St John Ambulance Association as such came into existence as a department of the Order of St John, in consequence of the growing interest that was felt in all ambulance work.

The Association was introduced into India in 1888, but it was not till some seven or eight years ago that a real and lively interest began to be felt in its work. At the present time there is perhaps no society of a similar nature that commands as much public sympathy and possesses as much popularity as does the St John Ambulance Association, and that amongst all classes, sects, and creeds. The body has its branches all over the country, and every day there is a cry for establishing new centres and sub-centres from which to spread its valuable and charitable work. The Indian public have begun now to realise what the Association means, what its precepts are, what its utility is in times of peace, that is, on the civil side of its work, and how useful it can be made for times of war such as the present, not only by rendering one and all familiar, so far as possible, with the art of aiding the injured, but also by training men and women who may band themselves into brigades and form what may be called an auxiliary corps to aid the regular medical services in their ambulance work in the field, that is, on the military side of its work.

For most of the historical facts contained in this paper I am indebted to the first chapters of the White Book of the St John Ambulance Association.

PRELIMINARY NOTE ON THE TREATMENT OF KALA AZAR BY TARTAR EMETIC INTRAVENOUSLY, AND INUNCTIONS OF METALLIC ANTIMONY

By SIR LEONARD ROGERS, M.D., F.R.C.P., I.M.S.,
Professor of Pathology, Calcutta

As already recorded (*Indian Medical Gazette*, May, 1915) I was led last year by reports on the value of antimony preparations in the treatment of sleeping sickness to decide to try intravenous injections of tartar emetic in kala-azar, although even Gasperi Vianna's results of its use in dermal leishmaniasis had not then come to hand. Unfortunately, owing to lack of clinical facilities at that time, I had to wait for six months before commencing its use, but I had already given the injections in a number of cases of the Indian form of kala-azar quite independently of any other worker before the report of its successful use in the Mediterranean variety of the disease

by Dis Cristana and Caronia in Sicily reached me. I have now had over four months' experience of the treatment, and, although it is far too soon to come to any final conclusions on the subject, yet in view of the great importance of the matter in India, it appears to be advisable to briefly record the general impressions derived from my experience so far.

I first used a one per cent solution, as recommended in sleeping sickness, and began with very small doses of less than one cc, but rapidly pushed it up to several cc, when I found it more convenient and quite safe to use a two per cent solution and to give the injections every two or three days, gradually increasing them from 2 cc up to 10 cc as long as nausea and epigastric pain are not produced, and I have seen no injurious effects from these doses. A fine sharp needle is essential, a little blood being first drawn up into the syringe to make sure that the vein has been entered, as tartar emetic is very irritating subcutaneously. In one case a little of the one per cent solution escaped into the tissues around the vein in spite of this precaution and a small slough resulted.

It was not until doses of 4 or more cc of the one per cent solution were reached than any material change other than temporary reduction of the fever was noted. In some cases rigors followed the larger doses, but after a time they ceased and the temperature remained at a low level or at the normal point, weight was steadily gained, and marked improvement resulted in several instances, including reduction in the size of the spleen. In all the cases the diagnosis was verified by spleen puncture, which is most essential in testing any treatment for kala-azar. On repeating this procedure after cessation of the fever the parasites were found to be greatly diminished in numbers and small and shrunken in appearance in several cases, as is often seen in patients on the road to recovery. Three patients at this stage felt so much better that they would not remain longer in hospital. They cannot be regarded as cured, although a long experience leads me to believe that some at least of them are likely to completely recover in time. Others still remain under observation, and I hope to be able to follow them up and report more fully regarding them at a future date.

Blood examinations showed a considerable increase of the leucocytes in most of the cases which improved, but this did not occur as a rule until after the cessation of the fever, so that it is apparently not a direct effect of the drug, which probably acts on the parasites themselves and is thus specific.

Complications—In three boys cancerum oris developed two of whom were taken away by their father, and one of them is known to have subsequently died while the third is still in

hospital and improving under autogenous streptococcal vaccine. In two cases boils or abscesses developed quite independently of the injections. These complications are common in kala-azar, but they were unusually numerous in this series of cases treated by tartar emetic intravenously. This may have been a coincidence in such a small series, but it is worth bearing in mind in view of the statement of Twining, in his book on *Fever in Bengal* (published some eighty years ago) that mercury is likely to be followed by sloughing conditions in "malarial cachexia," in which term kala-azar was included for many decades after his time. One patient developed ascites soon after admission and eventually died of broncho-pneumonia and bacillary dysentery. The following table summarises the results in all those cases which have been under treatment for upwards of two months —

RESULTS IN CASES UNDER TREATMENT FOR
OVER TWO MONTHS

| Cases | | Complications |
|---------------|---|---|
| Much improved | 6 | |
| Improved | 2 | Cancrum oris 1 |
| No change | 1 | |
| Worse | 3 | Cancrum oris 2, bacillary dysentery 1 |
| Died | 1 | Ascites, dysentery, and broncho-pneumonia |

When it is taken into account that the class of cases admitted to hospital are usually in a very advanced stage of the disease and the frequency of serious complications in the series these results are distinctly promising. It is unfortunate that the method is dependent on facilities for and skill in giving intravenous injections, which will greatly limit its employment on a large scale in dispensary and village practice in India.

Inunctions of Metallic Antimony in Kala-azar —Owing to the disadvantages of the intravenous method, especially in young children with small veins, I have recently tried inunctions of five per cent finely divided metallic antimony in the form of an ointment, making the applications every three days. Although the patients appear to be improving, it is too early to say whether this method will prove to be of value or not. Should it be effective it will be a great advance on the tartar emetic intravenous injections. Trivadin is also worthy of trial in a similar manner, as it is said to have been useful in sleeping sickness.

THE TREATMENT OF KALA-AZAR
WITH TARTAR EMETIC

By E. MUIR, M.D., F.R.C.S. (Ed.),

Mission Hospital, Kalna

In the Tropical Diseases Bulletin for April 1915 there appeared a review of an article by G. Custana and G. Caronia, who had successfully

treated some cases of infantile kala-azar with tartar emetic after the publication by Gasper Vianna of cases of dermal leishmaniasis treated successfully with the same drug in South America.

Having at the time some cases in hospital of adult kala-azar, I at once began to treat them in the same way, and was surprised at the result. Indeed, with the exception of emetin in amoebic dysentery I have never seen a specific work a more rapid and striking result in any disease. Up to the first week of August I have treated twelve cases with tartar emetic, in nine of which the diagnosis was confirmed by finding the parasite in spleen punctures, and of these, with the exception of one who came in the very last stage, all have either recovered or are recovering.

The method of treatment is the following — A one per cent solution is injected every second day intravenously. With a little experience this is done quite easily and practically painlessly, the smallest child even submitting to it without crying. Care has to be taken that none of the fluid escape into the subcutaneous tissues, otherwise a most painful swelling is produced. This can, however, be obviated by seeing that a thin stream of blood is running into the syringe before the piston is pushed home. The dose should begin with 4 cc and be increased each time by 1 cc up to 10, unless there are signs of nausea when it should be decreased by 1 cc and then gradually increased again.

I have found with the one exception mentioned above that there is marked improvement after even the first injection that after the second injection there is always a consuming appetite and the spleen is markedly decreased in size, while the colour of the patient changes rapidly from the characteristic black colour, which gives the name to the disease, to a normal colour.

I still continue to use in conjunction with tartar emetic the turpentine intramuscular injection, which I used formerly alone, and find that it increases the rate at which the spleen diminishes.

The turpentine injection consists of a solution of turpentine one part in camphor-creosote one part of each and olive oil two and a half parts. Of this up to ten minims is injected into the muscles of the back on either side of the body.

I have invariably noted that if such an injection is given to a patient at all advanced in the disease before the tartar emetic treatment is begun there is little or no reaction and swelling.

If, however, it is given after a week's treatment with tartar emetic, there is a very marked reaction, the part injected swelling and causing considerable pain. Spleen punctures taken at a week's interval show first marked diminution and then complete disappearance of the parasites.

I should have liked to wait before publishing this article till I could produce a complete set of cases which had stood the test of a year's time.

without recurrence. But I have thought it right to publish the following few recent cases which have been apparently cured or are rapidly improving, as I think it important that this form of treatment should be widely known without any delay, as it is undoubtedly a specific for the form of kala-azar found in the Hooghly and Burdwan Districts.

Case I—B. C., aged 20. Admitted to hospital on October 13th, 1914. He had been ill with fever, accompanied by enlarged spleen, for some considerable time, it was difficult to make out how many months.

Spleen was enlarged to beyond the umbilicus. Patient emaciated, but not complaining of any pain or discomfort. He was treated at first with quinine, both by mouth and hypodermically, but without any result. On December 7th Leishman-Donovan bodies were found in the spleen.

On December 13th an injection of 6 min of turpentine was given intramuscularly. Thereafter the temperature remained normal till the 2nd of January, 1915. On the 4th of February L. D. B. were found in the peripheral blood. Thereafter he was treated with frequent injections of turpentine solution, under which he made some improvement, the spleen retreating to above the umbilicus. On April 3rd he had a severe attack of pneumonia from which he recovered with difficulty.

From the 11th April, when he recovered from the pneumonia, his temperature remained normal till the 30th. On April 19th his weight was 5st 9½lbs. On May 1st it was a ½lb more. The turpentine solution injections continued, and on May 22nd he was 6st 2½lbs.

On May 27th the tartar emetic injections began, and were given regularly every second day till the 16th of June. On June 1st his weight was 6st 10lbs and on the 8th 7st 1lb. Within a fortnight the spleen was reduced to a third of the size it was when the tartar emetic injections began.

Since then he has remained extremely well. On the 5th of August his spleen was level with the costal margin and a spleen puncture failed to reveal any parasites. His weight was 7st 12½lbs on the same date.

Case II—Pareshnath, aged six. Was admitted on November 27th, 1914.

The spleen was two and a half inches below and to the right of the umbilicus. He was treated with turpentine injections till the 11th of February, 1915, but as he seemed to have gone too far, and there was no improvement up to that date, he was sent home to die. Spleen punctures were taken upon several occasions and the spleen pulp was always found to be swarming with L. D. B. His aunt, who was very much devoted to him, persisted in bringing him to our out-patient department, where he was still treated but

continued to get worse. On June 11th he was again admitted to hospital and 5 cc of tartar emetic given intravenously.

He was, however, so weak that another injection was not given till the 24th. During this period of about a fortnight his temperature became normal for the first time for several months. On the 24th, 28th, and 29th injections of 2½cc were given, and thereafter every second day, till the 13th of July, when 4cc was given every second day till the 21st. Small injections of turpentine solution were also given from time to time intramuscularly, producing a marked reaction where they had produced little effect before. The temperature remained normal all this time except where the turpentine induced a temporary rise for a day or two. The spleen became reduced in size from 2½ inches below the umbilicus to 1½ inches below the costal margin. His weight increased from 1st 10lbs on the 11th of June to 2st. 2½lbs on the 19th of July.

From after the first injection he had a tremendous appetite, although he could only be induced to take the simplest food with the greatest difficulty before. The colour of the skin and the whole expression of his face became so quickly changed that I had difficulty in recognising him one morning when I went to pay my ward visit. On August 1st a spleen puncture was taken, but no parasites were found.

Case III—Suresh, aged 30. Had had fever off and on for 2½ years.

He had lived in a house where a former kala-azar patient of ours had lived and had probably got the infection there. He was admitted and a spleen puncture taken on April 4th, 1915. The spleen extended to the umbilicus and was found to be swarming with L. D. B. The spleen diminished to about half the size under injections of turpentine solution. There was still, however, occasional fever and the patient was weak and unable for work.

Tartar emetic was begun on June 6th and continued more or less regularly every second day till the 21st, during which time he much improved in health and appearance and the temperature continued normal. He then had to go home and did not return till the 28th. He then came back with an attack of fever, which was probably malaria. Thereafter tartar emetic was given in increasing doses every second day till the present date, August 16th.

He is now working as a *mukh* in our hospital compound and feels perfectly strong and well. The spleen is still slightly below the ribs, but is steadily diminishing. Patient has had a very large appetite since the beginning of the tartar emetic injections and is increasing steadily in weight. On August 5th a spleen puncture was

again taken and a few L D B were found, where before they had been swarming

Case IV—Yakub Sheik Admitted on the 22nd of June Spleen reaching below the umbilicus General anasarca Extreme anæmia, wasting, and inanition Suffering from extreme dysenteric symptoms Tartar emetic was begun on the 30th of June and 2½cc given every second day The spleen diminished rapidly in size, patient gained weight, the dysenteric symptoms disappeared the anasarca disappeared more gradually It had not been considered safe on admission at first to take a spleen puncture, but, when this was done after the patient had improved under treatment, L D B were found, thus confirming the diagnosis At the present date, August 16th, the patient is in good health, with a good appetite, no bowel symptoms, spleen less than an inch below the ribs Patient was also injected with turpentine solution, which, in our opinion, accelerated the result

This along with Case I and the next case are the most striking, as they came under our treatment during what we have been accustomed to consider as the last stage of the disease Yakub's age is eleven

Case V—Bhaddeshwai Admitted on May 26th, 1915 Patient was extremely emaciated There were extreme dysenteric symptoms, which did not yield to emetin, castor oil emulsion, or any of the ordinary remedies

The spleen reached to a point an inch to the right of and below the umbilicus Patient was so emaciated that he could not either stand or sit up and could only with difficulty turn round in bed Patient's age is six

On admission he had a high, remittent temperature, which did not yield to quinine, given in large doses by mouth and hypodermically

The abdomen was swollen with flatulence, and the feet and face showed anasarca. Tartar emetic was begun on the 31st May, and carried on with occasional breaks till the present date, August 16th The dosage was raised from 2cc to 4½cc A larger dose caused slight nausea

At present the patient is able to walk about The spleen is only half an inch below the ribs Patient has a large appetite and seems to be able to digest rice and fish and most of the other articles of Bengali diet

He still, however, has one or two motions a day containing mucus

The abdominal swelling has gradually diminished and is now almost normal Temperature has been normal since July 13th

Case VI—Khudnam Admitted July 21st 1915 Age eleven Had had fever for about eight months It had begun in the winter, been better in the hot weather than it is to say there had been no high fever, but had become worse again in the rains A spleen puncture showed abundant

L D B The spleen was an inch to the right of and below the umbilicus Patient had the typical black colour and dry, scaly skin of kala-azar Tartar emetic was given every second day In a week the spleen was reduced to 2 inches from the costal margin A second spleen puncture showed a very much diminished number of L D B The appetite became very great after the second injection At the present date, August 16th, the spleen is about half an inch below the costal margin, temperature is normal and patient feeling extremely well

Case VII—Patal Spleen about 2 inches beyond the umbilicus He was treated with injections of turpentine solution Under these the spleen very much diminished in size He then developed necrosis of the lower jaw, and during this time, although he was very ill, the spleen diminished in size still further The temperature remained normal after a large piece of necrotic bone had been removed from the jaw The patient was however still very weak and thin On June 2nd the tartar emetic treatment was begun, and the patient soon developed a very large appetite and rapidly put on weight. He has now been in robust health, with no spleen palpable for more than a month

Besides the above cases we have at present in our hospital four cases, in which L D B have been found on taking spleen puncture and which are all improving rapidly, though they have scarcely been long enough under treatment to record their cases in full There is also a small boy who was suffering from an enlarged spleen, a fever intractable to quinine though treated for about six weeks He also had very much enlarged and matted cervical glands Some improvement was given by injections of turpentine solutions, but the fever again returned, and the child could not stand the pain of the injections

Five injections of tartar emetic were given at two-day intervals After the second injection the temperature remained normal, the cervical glands disappeared, the spleen, which had been two inches below the ribs, almost entirely disappeared below the costal margin The usual appetite and increase of weight and sense of robust health also rapidly appeared

It is impossible to say for certain that this was a case of kala-azar, but the presumption is that it was such

With one exception we have so far saved or are saving every case that has come to us since we began this treatment and this one case was utterly beyond any possibility of improvement

We shall be glad to give further notes on the improvement of these cases, and our experience with further cases, to any who may be interested

Observations made on September 9th, 1915 —
Case I—Continues well

Case II—Has still further improved, has put on weight, and spleen is hardly palpable below the costal margin.

Case III—Spleen is no longer palpable below the costal margin. He is doing a full day's work.

Case IV—Is improving rapidly. The spleen has reached the costal margin and patient is strong and well. His bowel complaint has practically disappeared. He has put on weight.

Case V—Has made most striking progress. His weight has increased from 2st to 2st 2lbs in the last three weeks. The dysentery and prominence of the abdomen have almost gone. He is able to go about freely and his temperature remains normal.

Case VI—A spleen puncture was again taken on the 26th of August and no L D B were found, although the slide was full of spleen cells. The spleen is now level with the costal margin. His weight has increased from 3st 1lb on August 6th to 3st 5lbs on present date. He is perfectly well and runs about playing all day long.

Case VII—Continues in excellent health.

Since writing up the above cases I have the following additional cases to add—

Case VIII—Bhuloo, aged 17. Admitted on August 17th. Spleen was 2 inches below the costal margin, and was found to be swarming with L D B, one or two hundred to the microscopic field. She had had fever for about two years, and was extremely anemic.

At present date temperature is normal, spleen is level with the costal margin, patient feels well, and has gained in strength.

Case IX—Esharon, aged 9. Admitted on August 15th. Patient was suffering from ascites, and about 100 oz of fluid were removed from the abdomen.

A spleen puncture showed abundant parasites. The liver on admission was about 3 inches below the costal margin, and the spleen reached the umbilicus. At present date, the general condition of the patient is very much improved. There is no further tendency towards ascites.

The spleen has receded 2 inches from the umbilicus, and the liver is much decreased in size. Patient had been suffering from fever for one year and had had fluid in the abdomen for three months. The temperature is normal except where a rise is caused by injection of turpentine solution.

Case X—Martha, aged 9. Has been suffering from fever and enlarged spleen for the last four years. Had been treated with injections of turpentine from time to time as an out-patient. She was admitted on the 24th of August. Spleen was then 3 inches to the right of and 2 inches below the umbilicus. At present date the spleen is reduced to about two-thirds of the size it was at admission. Temperature is normal. Patient's general appearance and strength has much improved. In this case about 50 L D B were found within one cell.

Case XI—Bhudhai, aged 15 years. Was admitted on July 16th. On July 29th a spleen puncture was taken and parasites were found in quantity.

On admission the spleen which was extremely hard, was 1 inch beyond the umbilicus. It is now 1 inch short of it. During that time the weight has increased from 4st to 4st 4lbs. Patient has very much improved in strength and the peculiar black colour has entirely disappeared.

A second spleen puncture taken on the present date failed to show any parasites, while the slide was full of spleen cells.

Case XII—Habu, aged 30. Admitted on August 30th. L D B found in abundance in spleen. Spleen on admission was 1 inch beyond the umbilicus and is now 1 inch short of it.

Patient had suffered from dysentery, which was in a quiescent state on admission. The appetite induced

by the tartar emetic injections lead to such excessive eating that the dysentery was again lit up and we had difficulty in stopping it. The only remedy to which it yielded was large doses of magnesium sulphate in an acid solution.

The temperature is now normal and the condition of the patient is very much improved.

Case XIII—Ananda, aged 12. Admitted on July 27th. Patient was very much swollen with anasarca. The spleen was 3 inches below and 2 inches to the right of the umbilicus. At present date it scarcely reaches to the umbilicus. The anasarca has now completely disappeared. A spleen puncture, taken on date of admission, showed very large quantities of parasites, while a second puncture taken at the present date showed only very few. General condition of the patient is very good now, although he was undoubtedly in the last stage of kala-azar when admitted.

Case XIV—Lalit. Had been under out-patient treatment for some time off and on. He was admitted on September 6th. Very large quantities of parasites were found in the spleen. It is too soon to report on this case, but this and Case VIII show a peculiarity which should be remarked. They both showed parasites in far larger quantities than I have seen in any other patient. They also develop a rigor after each injection of tartar emetic which lasts for about half an hour after the injection. This in Case VIII has gradually diminished till there is now on a slight feeling of cold. Case XIV has only had two injections so far, but his rigor was less at the second than at the first.

In Case VI there is always severe coughing induced, due to the expectorant action of the drug. If the injection is given on a full stomach and the patient is allowed to walk about immediately after, there is often vomiting. Otherwise I have so far seen no ill-effects from these injections.

Every case treated so far, with the one exception mentioned above, has either been cured or has shown rapid improvement from the very beginning of the treatment. Turpentine solution injections have been used in all cases, as the recovery is much more rapid with them.

I believe however, that the turpentine injections are not absolutely essential for the final recovery of the patient, which would, however, be delayed without them.

OUTBREAKS OF EPIDEMIC DROPSY IN MOFUSSIL

By SARASI LAL SARKAR,
Assistant Surgeon, Krishnagar

In the course of my service I have come across the outbreaks of epidemic dropsy in two mofussil towns viz., at Nator the headquarters of the subdivision of that name in the Rajshahi district at Dhanbaid the headquarters of the subdivision of that name in the Manbhum district at present included in the province of Behar and recently in the village named Muragacha which is situated about eight miles from the town of Krishnagar, the headquarters of the Nadia district. I met the epidemic at Nator during the year 1906. I noticed the epidemic at Dhanbaid in the beginning of April 1909. The epidemic at Muragacha was noticed by me

during the months of November and December, 1914.

THE INTERESTING FEATURES ABOUT THE EPIDEMICS

At Natoi, all the cases occurred in the family of one rich merchant, and as far as I was aware no other similar case occurred there, at least during my stay there up to February, 1907.

At Dhanbaid all the people attacked were customers of a particular *mudr* shop of the place. The owner of the *mudr* shop, and some of his family members, were all attacked with the disease.

Exactly the same thing was noticed by me at Muragacha. Here also the cases of epidemic dropsy were strictly confined amongst the customers of a particular *mudr* shop. The proprietor of the shop and also the manager of the shop, with many of their family members, were the victims of the disease.

The description of the Natoi epidemic has been furnished to me by Dr Ramesh Chandra Sarkar, L.M.S., and is published at the end of this article in his own words, as far as possible. As I was soon transferred from Dhanbaid after the outbreak of the epidemic, I was not able to take proper notes about the outbreak. But I am sure that all the cases seen by me took their food materials from a particular *mudr* shop. The railway employees living in a particular railway mess, who were largely affected by the epidemic, were regular customers of the shop. Dr R. B. Singh, a Sub-Assistant Surgeon who was a popular practitioner of the locality, informed me that all his patients who suffered from the disease got their food materials from the particular shop noticed by me.

A comparatively full account of the outbreak of the epidemic dropsy at Muragacha, prepared by me, was submitted as a report to the Sanitary Commissioner, Bengal, by the Civil Surgeon, Nadia district, which is being published at present. The various cases of this epidemic dropsy were seen by the Civil Surgeon, Nadia, Dr Mahendra Nath Ghose, the senior practitioner of Ranaghat, and some other practitioners of Krishnagar town, and all of these have no doubt about the correctness of the diagnosis of the disease. It will be seen from the report that though all the persons whose families were attacked were regular customers of a particular shop at Muragacha, *z. e.*, having monthly accounts with the shop, there is one apparent exception. The whole family of the Station Master of Muragacha, including himself, were attacked with the disease. But the Station Master was not a regular customer of the shop. He assured me that he never bought rice for his household consumption from that particular shop, but he brought unpolished rice from Ranaghat for the purpose. But he used to

buy some other articles of diet like flour, mustard oil, and condiments from the shop. As the Station Master of Muragacha was of opinion that the disease might have originated from the use of a sample of mustard oil bought by him from the shop, we had the sample of mustard oil properly analysed by the Chemical Examiner, Bengal, who has kindly furnished me with the details of the analysis, which is appended in this article, from which it will be seen that the sample of mustard oil is a good one.

Besides these outbreaks of epidemic dropsy, I noticed the disease at Dhenkanal, which is an independent Raj Estate situated in an interior out-of-the-way place in Orissa about twenty four miles from Cuttack. In this State I understand that epidemic dropsy is recurring periodically every year for the last few years. My stay there was only for two days, so, though I saw some cases, I could not hold any investigation about the outbreak. However, I take this opportunity in drawing the attention of the Indian Research Fund Association and of the Behar Government to the fact that here is an interesting field for the study of the disease. As far as I can gather during my brief stay at the place, there is very little consumption of unpolished rice in the place.

OBSERVATIONS REGARDING THE SUDDEN APPEARANCE AND DISAPPEARANCE OF THE DISEASE

I may be allowed to point out that concerning the recent epidemics of the disease in Bengal, many medical men have noticed sudden outbreaks of the localised attacks of the disease, and a sudden disappearance of the disease without any apparent reason.

Captain S. Anderson has published an account of the occurrence of epidemic dropsy in Comilla Jail (*I M G*, March, 1908, page 85), the concluding lines of which are "no cases occurred previous to it, nor have any occurred since, either amongst the prisoners or amongst the civil population."

Regarding the outbreak of epidemic dropsy in the Dacca Asylum, Captain M. Foster Reaney thus summarized the principal points of the epidemic (in *I M G*, July, 1908, page 273).

He writes—

Briefly the Dacca epidemic was characterised by—

1. A sudden outburst of the disease in both the male and female portions of the Asylum, 95 out of a total of 158 cases occurring in the first 48 to 72 hours. The male and female portions of the Asylum, though side by side, are quite separate.

4. The short duration of the epidemic—150 out of 158 cases occurred within one week of the onset.

5 The absence of other cases in the adjoining jail and bazar

Regarding the outbreak of the epidemic in the Reformatory School, Alipore, reported by Lieutenant F J Daley (in *I M G*, February, 1908, page 53) he would trace the epidemic from a case which came from Chittagong Hill Tracts. The epidemic lasted about two months, and out of a total population of 200 boys in the school, there were 50 cases of beri-beri, of which two proved fatal. In the conclusion of the article Lieutenant Daley observes —

“It is very noteworthy that in the Alipore Central Jail, which is separated from the Reformatory School by about 150 yards, and whose daily population is about 2,000, there was not a single case though Burma rice was exclusively used in the Jail.”

Dr F Pease, who, as the Health Officer of Calcutta, had much experience of the disease, writes in the Annual Report of the Health Officer of Calcutta for the year 1910 —

“Major Greig seems to have adopted the extraordinary theory that it is due to defective nutrition, arising from the use of diet deficient in certain constituents, and that this deficiency was due to the process of milling of the rice and wheat used chiefly by Bengalees. I cannot subscribe to these opinions. The theory explains nothing. It does not explain the sudden outbreak at the Alipore Reformatory and its extension over the city, the subsequent subsidence and the sudden recrudescence of a still more severe character in the following year (1909) with much reduced incidence during 1910. The rice and wheat used by the Bengalees have been prepared in the same manner for many generations. Why should a disease brought about by such means attack chiefly groups of persons living in one house, in one street, or in one institution, who are living under identical conditions with their neighbours in adjoining houses and streets? Why should an outbreak occur and then subside to re-appear after an interval? The population using this milled rice and wheat is enormous, and if it were a matter of deficient nutrition arising from the particular form of preparation of rice and wheat we should have had the whole population more or less affected, and affected more or less continuously for years. Is it likely that those affected have taken such a limited diet that the deficiency in rice and wheat has not been compensated for?”

“Is not milk largely consumed, and would that not balance the deficiency of phosphorus complained about in the milled rice? It was noticed that the disease largely attacked the well-to-do during the recent outbreaks, but will any one say that their diet was so entirely composed of milled rice and wheat that they suffered from this disease in consequence?”

For the consideration of the etiology of the disease there was a meeting of the Indian Medical Practitioners at the Calcutta Medical Club, and the proceedings of the meeting have been reported in the *Calcutta Medical Journal* November 1909.

The general consensus of opinion of the medical practitioners at this meeting is (1) that the facts are not consistent with the theory that the disease is due to one-sided dietary, (2) that adulterated mustard oil is not probably the cause of the disease, and (3) very probably the disease is due to micro-organisms coming into the system through the infected food.

Regarding beri-beri, which must be regarded as a separate disease, I may draw attention to the interesting report of Dr John R Gimlette, Residency Surgeon Malay States, on beri-beri in Kelantan, published in the Report of the Advisory Committee for Tropical Diseases Research Fund for the year 1913, pages 223—227 and also to the very interesting article by Major R MacCarison on “A Contribution to the Study of Experimental Beri-beri” in the *Indian Journal of Medical Research*, July, 1914, page 369, in which he has claimed to have discovered a bacillus which, when inoculated into liberally-fed rabbits, fowls, and pigeons, produced in many of them symptoms which were indistinguishable clinically from polyneuritis gallinarum.

Without entering any further on the speculation as to the etiology of the disease I may proceed to narrate the facts of the outbreak of the disease at Muragacha and at Nator.

AN ACCOUNT OF THE OUTBREAK OF EPIDEMIC DROPSY IN VILLAGE MURAGACHA

The village Muragacha is a prosperous locality, about nine or ten miles from Krishnagar. During the months of November and December, 1914, there was a localised outbreak of epidemic dropsy in the village, which has never previously suffered from an outbreak of the disease, as far as could be ascertained from the accounts of the old inhabitants of the place.

The Mukeerjees of Muragacha are the leading inhabitants of the place. The members of these family own most of the *pucca* houses of the village and they are the zemindars or land-owners of the place. They live in one part of the town close together, in two separate *pucca* houses, the larger one accommodating five or six families—the smaller one accommodating only one family. The majority of the members inhabiting this smaller house was found suffering from an attack of epidemic dropsy.

Besides the Mukeerjees' house, the members of the following houses were also found suffering from epidemic dropsy —

(a) the members of the house of Chatterjee,

(b) the members of the house of the Station Master, Muragacha,

(c) the members of the house of Ram Gopal Nath, who is a principal shop-keeper at Muragacha,

(d) the members of the house of Nutbehari Ghose who is the manager of the shop of Ram Gopal Nath, mentioned above

Except these houses, there has not been a single case of epidemic dropsy anywhere in the village, which may roughly be stated to possess about 500 houses

The houses attacked, mentioned above, are situated at a good deal of distance from one another, in some cases about one or two miles. But I was able to find out the curious fact that all the families attacked are the principal customers of the shop of Ram Gopal Nath, whose family, as well as whose manager's family, as has been stated above, are also attacked. The Station Master, all of whose family members have been laid up with the disease, brings rice for consumption from Ranaghat and not from the shop of Ram Gopal Nath. The variety of rice he used up to the present has been unpolished rice. But he traces the outbreak of the disease after buying two seers of mustard oil from the shop of Ram Gopal Nath, after about four days of which his eldest daughter became attacked with fever accompanied by the dropsy of her feet. He continued the use of the oil, and, gradually, other members of the family became attacked with similar symptoms. He himself got swelling of his feet unaccompanied by fever. I have been able to secure a small quantity of oil from him, which was sent to the Chemical Examiner for chemical examination. The Report of the Chemical Examiner, a copy of which is annexed herewith, shows the oil to be a good one. In addition to oil, he used to purchase flour and other miscellaneous articles from Ram Gopal's shop.

Nutbehari Ghose, the manager of Ram Gopal's shop, informed me that they supply their customers with rice from local purchases, which are principally obtained from the Kutwa side. He uses oil from his master's shop for family consumption. But regarding rice, he often makes independent local purchase from the village, and regarding the other articles of food he generally gets them from his master's shop.

The members of the Chatterjee house are very intimate with the Mukerjee house, but the members of the other families attacked are not very intimate with one another.

The general symptoms noticed are that all the persons attacked have dropsy in their lower limbs. In a few of these cases oedema of the feet has come about without any symptoms but in the majority of the cases the oedema has been preceded by gastro-intestinal disturbance or

pyrexia. The gastro-intestinal disturbances have been the early or the initial symptoms in most of the cases. In most of the cases oedema is confined only to the lower extremities, but in a few of the cases it has been of the nature of the general anasarca. Except in mild cases, it has been somewhat of the nature of solid oedema as compared with ordinary dropsy. There are, as a rule, purpuric or erythematous discoloration of skin, present here and there over the skin of lower extremities. These are often absent from recovering cases. In one of the cases seen by me, as well as by the civil surgeon, there were nodules, in size somewhat smaller than a marble, in the muscles of the arm and forearm. One of the patients complained of deep-seated pain in the joints and in some part of the body, but there was little tenderness in the calf-muscles.

Pyrexia was of mild type, temperature varying between 99 to 100° F or to 101° F, the rise occurring towards the evening. This pyrexia did not come in with rigour or abated with sweats, as in the case of malarial fever.

No anaesthesia, hyperaesthesia, or dropping of the toe was noticed in any of these cases. In one case, the patient complained of burning pain over the leg.

All the cases were somewhat anaemic. The blood-film of a case with Leishman's stain was examined by the civil surgeon as well as myself for malarial parasites. No parasite was found but the film showed increased leucocytosis. The urine of a case examined did not show the presence of any albumen. At the time of visiting the village, some of the serious cases had gone away from the village. Though there was prostration there was no serious heart trouble in any of the cases.

Regarding the etiology of the disease, the Chemical Examiner's Report will show that the disease in this case is probably not due to the use of adulterated oil.

In view of the statement of the Station Master, Muragacha, that he along with the whole of his family members used unpolished rice brought from Ranaghat, we are inclined to give up the theory about the use of polished rice bringing on the disease in this case.

The Mukerjee and the Chatterjee families affected with the epidemic are the two richest families in the village. The other three families affected are also comparatively well-to-do families, while on the other hand the comparatively poor classes of people are not affected at all, leads us to doubt the theory that the epidemic dropsy is a deficiency disease.

On the other hand, the curious fact remains that all the families affected are connected with each other by the fact that they bought several articles of their diet from a particular shop-keeper. So it seems highly probable that some

infection of a micro-organism or some adulterated food containing some chemical poison has infected the several families. If the facts are carefully analysed, the nature of the poison seems to be a micro-organism rather than a chemical poison.

In the annexed appendix, we give the name of the customers of the shop of Ram Gopal Nath, indicating the families affected with necessary remarks against them.

The following is the result of analysis of one sample of mustard oil forwarded for examination

| | |
|----------------------|-------|
| Saponification value | 180.3 |
| Iodine absorption | 112.0 |
| B R value | 61. |

A mustard oil of good quality and unadulterated. The exhibit is returned by railway parcel.

Members of the Station Master's Family attacked with Epidemic Dropsy

| NAME | Age | Date of attack | Edema present or not | Discolouration of skin present or not | REMARKS |
|---|-----|------------------------|------------------------|---------------------------------------|---|
| Sishubala Devi, youngest daughter of the Station Master | 12 | About 10.11.14 | Moderate Edema present | Not noticeable | There was fever for seven days, afterwards the edema was noticed. |
| Subodh Chandra Mukerjee, younger son | 16 | „ 18.11.14 | Do. | Do | Edema came after fever. |
| Prabodh Chandra Mukerjee, elder son | 18 | „ 20.11.14 | Do | Do | Do |
| Satibala Debi | 14 | „ 25.11.14 | Do | Discolouration can be noticed | Do |
| Wife of the Station Master | 36 | „ 30.11.14 | Slight Edema | No discolouration | Edema was noticed without fever. |
| Sarat Chandra Mukerjee | 46 | Came off imperceptibly | Do | Do | Edema was noticed without fever. The Station Master slept outside the room, while the members of the family slept inside the room. There was one servant who was also attacked with disease. There were no members in the house, who were unattacked. The servant, it is said, was rapidly cured by taking the juice of <i>kukursoka</i> plant, which possesses markedly diuretic action. |

Members of the Family of Ramgopal Nath attacked with Epidemic Dropsy.

| | | | | |
|---|----|--|---|---|
| Ramgopal Nath | 55 | About 1st week of November probably the first case | At first the edema was solid but now greatly diminished | Petechie present in the lower extremities |
| Ramhari Nath, youngest brother of Ramgopal Nath | 45 | A little time after | Slight edema | Petechie present |
| Ramgopal's youngest sister (widow) | 17 | About the same time | Solid edema present | Do |

Members of the Family of Ramgopal not attacked.

| | | | | |
|--------------------------|----|--|--|--|
| Ramgopal's eldest sister | 65 | | | |
| Ramgopal's next sister | 40 | | | |
| Ramgopal's first son | 12 | | | |
| Ramgopal's second son | 6 | | | |

Members of the Family of Nutbehari Ghosh attacked with Epidemic Dropsy

| | | | | | |
|---|----|---------------------------------|--|-----------------------------------|--|
| Dulal Chand Ghosh, grand son of Nutbehari Ghosh | 17 | About the beginning of December | Moderate edema present. | Slight petechie at places present | There was slight pain in the legs, pulse 90 |
| Nutbehari Ghosh | 60 | Not definitely ascertained | No edema present at the time of observation. There was slight edema which has disappeared. | Nil | |
| Saralabala, grand-daughter of Nutbehari. | 11 | Do. | Nil | Nil | |
| Nutbehari's daughter, married. | 31 | About 1st week of December | Nil | Nil | States that she got marked benefit by taking the juice of <i>kukursoka</i> . |

Members of Family of Nutbehari Ghosh who escaped.

| NAME | Age. | Date of attack | Edema present or not | Discolouration of skin present or not. | REMARKS |
|------------------|------|----------------|----------------------|--|---------|
| First grand son | 8 | | | | |
| Second grand son | 2 | | | | |

Members of the Mukerjee Family at the house attacked with Epidemic Dropsy

| | | | | | |
|---|----|----------------------------------|--|---|--|
| Manindia Nath Mukerjee | 17 | About the beginning of November. | Somewhat solid edema present up to the thigh | Marked patches of reddish discolouration of skin over the skin of lower extremities | He is somewhat cachectic and anæmic. Spleen and liver not enlarged. Gives the history of malarial attacks immediately before his swelling. Temperature 100, pulse 104, knee jerk absent. There are aching pains and some amount of tenderness in the legs. |
| Ban Behari Mukerjee (younger brother of the above) | 14 | A few days after | Edema slight | Discolouration of the skin cannot be noticed | Pulse 95, temperature 99.4. |
| Grandmother of the above | 65 | Almost simultaneously with above | | | Died on the 18th December, 1914. Marked swelling of the legs was noticed. |
| Sisir Kumar Ganguli's daughter, an outsider living in the house | 14 | Not known | Slight | Nil | |

Members of the Mukerjee Family living in the above house attacked with Epidemic Dropsy, but not suffering from the disease

| | | | | | |
|--|----|--|--|--|--|
| Satya Chaman Mukerjee (father of Manindia and Ban Behari Mukerjee) | 45 | | | | |
| Wife of the above | 35 | | | | |
| Daughter of the above (married) | 14 | | | | |
| Maid servant | 35 | | | | |

Members of the Chatterjee house attacked with Epidemic Dropsy

| | | | | | |
|---|----|---|---|---------------------------------------|--|
| Kamini (maid servant of the house) | 40 | This was the 1st case in the house occurred in the end of November. | Edema is reported to be marked before but at the time of observation, i.e., on 27.12.14, slight | Very slight present | Pulse 97°, temperature 100° F. |
| Probodh Chatterjee's wife, Kalidasi | 22 | A few days after | Slight | Nil | |
| Prabhat Chatterjee | 25 | Do | Nil at present | Slight discolouration of skin present | Said to have used the juice of an indigenous plant named <i>Lukumsoku</i> (said to possess marked diuretic properties) with benefit. |
| Probodh Chatterjee (elder brother of the above) | 30 | About the same time | Edema moderate | Slight discolouration of skin | |
| Binapani (wife of Prabhat Chatterjee) | 16 | Do | Slight | Slight discolouration of skin | Pulse 82, temperature normal |
| Mother of Probodh and Prabhat | 55 | Do | Do | Do | Widow |

Names of the Members of the Chatterjee house not attacked with Epidemic Dropsy

| | | | | | |
|--|----------|--|--|--|--|
| Prakash Chandia Chatterjee (Probodh's youngest brother). | 19 | | | | |
| Wife of the above | 14 | | | | |
| Their daughter | 6 months | | | | |
| Probodh's son | 4 | | | | |
| Probodh's daughter | 8 months | | | | |

Incidence of the disease amongst the regular customers of Ram Gopal Nath

| Names of all persons taking articles from the shop of Ram Gopal Nath on monthly account | Attacked | Not attacked | REMARKS |
|---|--------------|--------------|--|
| Provat Ch Chatterjee | Whole family | | Used Dudkalma rice, which is a variety of polished rice |
| Jatindra P Chatterjee | | Un attacked | Balam rice |
| Trailakhya N Sarker | | Do. | Dudkalma and alap rice |
| Satya Ch. Mukerjee | Whole family | | Do |
| Anukul Ch Mukerjee | | Un attacked | Used rice from his own field Home production |
| Sree Bh Mukerjee | | Do | Came to Muragacha from 15th Katic |
| Station Master | Whole family | | Flour and other articles from the shop Gets rice from Ranaghat Has no monthly account in the shop like others in this list |

An exhaustive list of articles sold from the shop of Ram Gopal Nath

- 1 Rice
- 2 Oil
- 3 Sugar
- 4 Flour
- 5 Ghee
- 6 Condiments
- 7 Stationery

The following are the names of some of the rice sellers of Muragacha, whose customers did not get epidemic diopsy

Sree Hari Das
Ram Gopal Das
Kali Das

All of these, like Ram Gopal, obtained rice from Kutwa

Rice was sold at Rs 5-4-0 per maund at Muragacha

Some of the cases were treated by Vitamine, as suggested by Vedais, which was prepared in the following way —

A quantity of rice polishings soaked in rectified spirit for a day or two in a closed bottle, and then the spirit was filtered through a blotting paper and allowed to evaporate off in a dark cool place, and the quantity of the residue was given as medicine twice or thrice daily. The cases reported themselves to be benefited by the use of this preparation. Some of the cases used the juice of the indigenous plant, *kukursoka*, and reported themselves benefited by the use of the plant, as has been noted in the previous table

(To be concluded)

A Million of Hospital Practice

SOME CHOLERA EXPERIENCES

BY R BRYSON, FRCSE,

MAJOR, I M S,

Surgeon, First District, Madras

I HAVE, the last few years, read several articles on cholera and its treatment, but have not noticed any allusions to the difficulties which arise in carrying the cure to the victims of an epidemic—a brief narrative of our experiences may perhaps be interesting and instructive. On taking charge of my district in 1913, I found there were two small buildings for infectious diseases, and was informed that when cholera cases occurred in our end of the town they were brought there for treatment. As I had orders to replace the old dilapidated buildings of the adjoining general hospital by a new and up-to-date structure, my first duty obviously was to clear out this “infectious diseases” hospital from the compound of the new hospital. Fortune favoured me, as right across the road was a tumbled-down old regimental hospital, being disused and slowly crumbling to ruins. It was a bigger place and admirably adapted to our needs, consisting of two long wards 80 feet by 40 with a sort of office room separating them. There was a verandah back and front, the floors were tiled with Cuddapah slabs, and there were some small out-houses adjoining. Turning the tiles to make it waterproof, whitewashing the walls, and mending the railings and gates which isolated it, was not a difficult matter, but it was curious that the moment I asked for the buildings which had not been used for over twenty years other claimants appeared in the field, each of whom considered that this most desirable residence was exactly what they needed. This is a small point but worth noting in view of the object of this article. It was purely personal influence that won the day! Being still an “infectious diseases” hospital, I had at my disposal an excellent nurse and five servants, a male and female ward attendant, a male and female sweeper, and a cook. I next obtained a cholera outfit, Rogers’ book, sterilizers, kettles, and instrument for venesection. The Sub-Assistant Surgeon attached studied the book and got things in time for ‘possible’ cholera cases by working out with the nurse a scheme for providing sterilized saline solution, permanganate, etc., at a moment’s notice. A large notice-board was posted at each gate informing the public in English and the vernacular that this was a ‘Cholera Hospital, open at all hours by day and night’.

During 1913 the usual run of small-pox, chicken-pox, measles, and mumps continued, but so far as cholera was concerned the town remained disappointingly healthy. Our record was three cases, all cured, of cholera. The first half of 1914 remained much the same, but in September and October we were rewarded by a real first-class epidemic, greatly aided in its spread by the emigration and re-emigration, caused by the "flightfulness" of the *Emden* raid.

It is not proposed in this article to give statistics. I will only state that, spread over two months, we had about 300 cases, of whom about 230 went home sound and well. The figures for the town had previously shown the usual mortality of about 75 per cent to 80 per cent, and we were rather pleased at getting a recovery rate of nearly 85 per cent straight off in the first part of the outbreak which covered 200 odd cases.

Mars revenons à nos moutons. When the first few cases arrived we were luckily free of small-pox, etc. The men were admitted in one ward and women in the other. Then the convalescents complained that they objected to seeing fresh cases vomiting and purging, their collapsed condition frightened them, and they could get no rest. So the wards were divided by a partition into two parts, and convalescents were thus separated from new arrivals, men at one end of the block and women at the other.

The office between these male and female wards, which I have already mentioned, was utilized by the nurse for preparing her solutions and injections and by the assistant for keeping records of the disease, property of patients, and other details. Injections were given on the back verandah on a charpoy, and soon a second and a third charpoy were installed for the purpose, additional bulbs purchased, and the staff, including the probationary Resident Medical Assistant Surgeons of the main hospital, were voluntarily impressed to assist.

Yeoman service they did too, rushing over at all hours of the night and making it possible to take specific gravities and blood pressures which would have been an impossibility for me and my solitary Sub-Assistant Surgeon, neither of us having quarters in the vicinity.

The number of cases increased very rapidly to a dozen or more a day and after a fortnight of incessant night and day duty my nurse and menial staff were showing signs of exhaustion.

I wrote to the municipal authorities saying I was engaging more hands in anticipation of sanction but the trouble was to get them. They knew they were only engaged temporarily, and they flunked cholera! On my own responsibility I offered a larger wage. Fortunately for me my nurse had a widowed daughter, absolutely untrained but willing and above all thing, "conscientious." She and her mother

came to the rescue, and somehow managed to get one or two additional menials to join. Not only, in each case, had the evacuations, secretion of urine, pulse, and half a dozen other things to be watched and noted every hour of the twenty-four for the first day or two, but the relatives were a terrible trial, which got so worrying that at last the aid of the police had to be invoked. They either dropped the case on the floor and fled, leaving it to the horrified staff to discover name, age, residence, duration of disease, and so on, or else they hung round in shoals and got in the way. How could one separate mother from child, and yet the former were invariably obsessed with the idea that our dietary was insufficient in the convalescent stage. How could one tear a woman from her husband in the male ward where her presence was objectionable, however useful to the overworked staff?

We never had more than 40 at one time in the hospital, but what were two nurses amongst so many. And, *nota bene*, the staff I started with was only at my disposal, because small-pox and measles dropped in at all times of the year. What municipality would have kept them on hand doing nothing over 18 months? Possible, perhaps, in the large cities, but what about the small towns where the epidemics occur. At first I had been dealing with poor Indians, non-caste coolies, mendicants, and servants. But soon there appeared a Hindu student, and next a Eurasian railway man, some Indian Christian women, and some Eurasian and poor European children. Last, but not least, one of our sweepers picked up the fashionable complaint, and I observed that he was banished to a corner of the verandah, because the patients, several of whom he had untiringly and devotedly attended to, objected to his contaminating presence! Screens, purchased again in "anticipation of sanction," aided the separation of the classes which had begun with the original partitions. But there were many other obstacles to the attainment of perfect harmony, and the complaint of the self-styled "cook" that he knew not how to make the buttered toast demanded by the convalescent Indian Christian lady and the engine driver was one of the least.

The wife of a European, who was a perfect god-send in helping to nurse her husband, was hard put to it in matters of personal convenience, as there was no European lavatory or dressing-room provided for her. Supplying her food was also a difficulty. Our first cases of opium poisoning resulting on the absorption of medicines administered before admission were rather a puzzler till it was realized what was wrong and more experience was gained. The pessimism of the new hand was also most aggravating. He invariably informed the anxious relatives usually within hearing of the patient that the injection he had given was his last chance, and he would not be surprised if the said

patient died within the hour. It took a fortnight or ten days before one heard the far more cheery assurance that "now he will be quite all right, you've come just in time." As a matter of fact it was much more impressive! Cholera is a quickly fatal disease, and it occurs in epidemic form, *z c*, it rapidly spreads. It favours congregations of people such as one gets at temple festivals in small towns and villages.

Thanks to the work of Rogers we now have in our hands a method of treatment which reduces the mortality from 98% to 10 or 15%. If it is really worth while saving these 80 or 90 lives out of every hundred attacked, how is it to be done? Will the object be attained by arming an Assistant or a Sub-Assistant Surgeon with a cholera outfit and a book of the words and dispatching him at 24 hours' notice, with (or without) previous experience, to the centre of an epidemic on "Cholera duty"? However much of an expert, will he be able to command the accommodation required and the staff necessary? Will the potentate to whom he must apply for ways and means take him seriously when he makes the demands, some of which I have portrayed as possibly necessary? He may not meet all the difficulties I have mentioned, he may meet some which did not occur in our case. It must be remembered that in very many cases as a result of the influx of strangers attending a festival accommodation and food prices rise beyond all normal rates. I well remember on one occasion in the mofussil being confronted by three assistants who had been sent at very short notice on duty to a neighbouring town on the occasion of a big temple festival. With tears in their eyes they informed me that the price of a "pial" or stone bench in a verandah had risen to an anna for a night. What they were obliged to do in the matter of ablutions, purchasing and cooking food, and so on, I leave to the imagination. It will not help matters in the very least to heap abuse on an unfortunate, faced with these difficulties, who fails to get the percentage of recoveries we may reasonably expect from carefully carrying out the details of our new method of treatment. The village *munsif*, the police inspector, and various other local authorities must be educated before we can assume that the scientific treatment of cholera is really at the disposal of the multitude.

I might here mention an illuminating trifle! About the middle of the epidemic an urgent order was received one night at our hospital, requisitioning the attendance at the house of an Indian gentleman of the nurse, the assistant on duty, a ward boy, and the cholera apparatus. Foreseeing the possibility of such an occurrence, I had fortunately given instructions vetoing any such desertion of our over-full wards at any price. I wonder what would be the fate of a

subordinate in a remote village or town, who refused to obey such a behest *et cetera*.

One doubting Thomas, a man of weight, whose assistance I was anxious to obtain, gave a lot of extra work by suggesting that our claims were observed, and the cases could not be real cholera. A series of cases were sent to a central laboratory for confirmation of our microscopic findings, but he remained an unbeliever in spite of their report agreeing with us and we were obliged to do without his influence, which was considerable.

As for statistics, I think I shall, after my experience of this epidemic, always look on figures which are not backed by very reliable authority, with some suspicion. The pitfalls are numerous and the temptations to "cook" great. Over thirty of our cases were dysentery, colitis, and other diseases, which zealous inspectors and frightened neighbours had hustled into the cholera hospital. On the other hand, I saw several moribund expue on the doorstep.

Another matter which is likely to trap the unwary is the lure of the private case. My first on this occasion was a fairly well-to-do family. The usual cowdung floor, flies and babies crawling about, uncovered evacuation-stained clothing lying about, and in the background the rival attractions of the family *vardyan* who had given up the case, but flew back to the house, and was received with open arms in spite of his defection, when he heard I had been sent for. Now these dear people had heard of the saline injection method, but their idea of the worth of my services was restricted to the value of one ordinary fee. There was no nurse, the skilled labour of the attendant who accompanied me was ignored, and the height of generosity was reached when they had recompensed me handsomely, as they considered, for one injection. It happened that in this particular case one injection sufficed. Also I was on education bent, the house being in the centre of an infected area. I waived my claim to any remuneration, and gave vent to my feelings in a short informal address on the possibilities of the situation, but the incident lent furiously to thought, and I added one more lecture to my assistants on the benefits of endeavouring to concentrate all cases in the vicinity of their sterilizing apparatus and the advantages to the general public of their denying themselves an occasional fee, so that they might not run all the risks of failure entailed by "private" cases.

Speaking for myself and my staff, I think, I may say that though we were very pleased at the moderate measure of success we attained, we are still more gratified at the healthy impression produced by our institution on the thickly populated part of the town in its neighbourhood. We feel that we have gained confidence and overcome prejudice to some extent. It was a triumph for "the treatment."

After the epidemic was over, I asked for a month's pay as a bonus to the menial who had done double and treble duty, and who were on the lowest possible scale of pay granted in an ordinary hospital. This was readily given, and I merely mention it as another assistance of the way in which we were helped by educated, intelligent authority. May this be the good fortune of every subordinate sent out to-day on "cholera duty." An annual budget showing a big balance to the good on the 1st of April may be a triumph but surely it is a small matter compared with the results which can be attained by judicious expenditure, untrammelled by budget estimates, on such a devastating disease as cholera is in the East. I have endeavoured to show how suddenly the need may arise, how diversified are then nature and how rapidly they may increase. Our epidemic cost a mere trifle, but it must be remembered that half a dozen qualified men who assisted me were working voluntarily, and we were all carrying out our ordinary duties just as usual. This will very rarely be the case in the mofussil. The solitary cholera-duty assistant may get ill himself or may have his only glass bulb broken. The unforeseen hovers persistently in the background. From beginning to end the layman is likely to be misled and to misunderstand things. He reads that three pints of sterilized saline are used for an injection, but he little realizes the number of pints required, say, for 30 bad cases, all in hospital at the same time, and the labour involved in seeing that every injection is ready and all that it should be when it is required. Tell him the number who have recovered, he is inclined to be sceptical, mention that one or two cases injected for the third time at 3 A.M. recovered, but suffered from a septic aim, he cannot understand such carelessness and stupidity.

Though you cannot induce him to pay a daily nay even a weekly, visit to the hospital, he is not a bit surprised to hear that a wretched sweeper has spent 18 hours out of 24 cleaning up evacuations, etc., but "is" surprised there are not more recruits for the work at the amazing price of Rs 8 or 9 per mensem, to be delivered to his sorrowing relatives should he succumb in the process of earning this emolument, temporary and non-pensionable. Without being an eye-witness what idea can he form of the anxieties and the wearing nature of the duties of the nurse who has to watch each patient very closely keep them clean, prevent surreptitious feeding, prepare Bailey water and permanganate water

hot water and sterilized water, take temperatures, administer pills or tabloids, swat flies, store dirty clothing and check clean linen, disinfect "everything," and safely store money and jewellery? These are all "part" of her work.

Of our 230, all-alive-oh, several claimed compensation for permitting a venesection, but "one" only showed practical gratitude. He had three rupees nine annas and seven pies tied up in his rags, and when the exact amount was returned to him on leaving the hospital he was so overcome that he offered the nurse one anna and six pies. And he was a mendicant!

Once upon a time, many years ago, we filled the haversack of the cholera duty subordinate with cholera pills (!) and astringent mixtures, and we provided him with registers and returns which he faithfully (?) filled in and despatched to headquarters duly signed and attested (most important point), within the date on which they were due. So long as his bodily presence pervaded certain areas on certain days (with travelling allowance thrown in) a sense of spiritual contentment prevailed at the centres of administration.

But we remained a long long way from Tipperary, though the budget estimates and the record looked so nice.

We have now overhauled and entirely changed the contents of the knapsack (which unfortunately have to include a knife), but what about its bearer and his environment and difficulties? Is it a case to which with some slight latitude we might be allowed to apply the analogy of new wine in old bottles? Time will show.

"Facts are chieftains that winna ding
An' daena be disputit"

A NEW METHOD OF GASTRO-ENTEROSTOMY

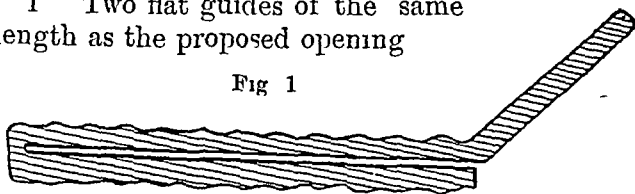
By D. JOHN, M.B.,

Assistant to Civil Surgeon, Amnachi

THE following special instruments are required—

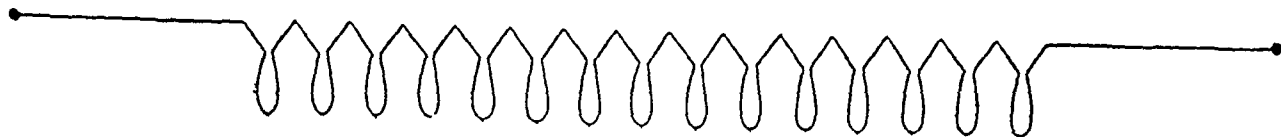
- 1 Two flat guides of the same length as the proposed opening

Fig 1



- 2 Four suture holders of bent wire with a dozen or more loops

Fig 2



through-and-through and the other sero-serous all round except at one end where the loop 14's and ends 15's and 1's are left untied. There remain to be done (1) the opening of the stomach and the intestine within the area of anastomosis, and (2) completion of the two rows of sutures.

These can be accomplished as follows —

Through the point of entry of the sewing machine on the stomach introduce a long thin probe-pointed bistoury (a pair of fine long probe-

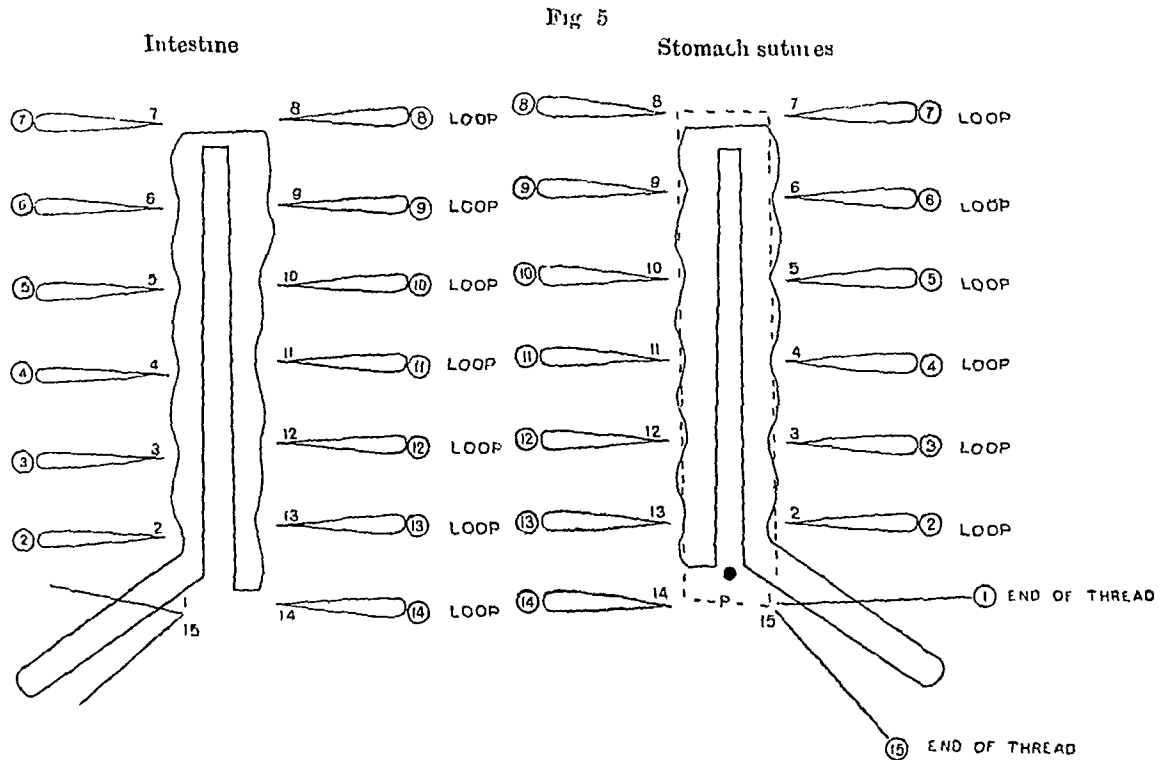
completed. The intestinal contents cannot soil the hands of the operator or the site of operation.

3 The through-and-through sutures encircle in small sections the anastomotic opening and effectually prevent hæmorrhage.

4 The mucous membrane cannot prolapse into the wound as in the ordinary operation.

5 No clamps are used.

The guide plates have identical wavy edges and enable the surgeon to introduce the same



The dotted line shows the thread on the mucous surface

pointed scissors would be better) and divide the wall along the slit in the guide.

Divide the intestine likewise.

Remove the guides through the gap left—the fixation sutures (b c) are automatically divided when the incisions are made.

Tie the loops 14's together.

Tie the ends 15's and 1's together in one knot.

Complete the sero-serous suture.

In tying the through-and-through sutures be careful not to pull them too tight as this will strangulate the tissues round the free edge. They should be just tight enough to bring into apposition the serous surfaces.

The advantages claimed are —

- 1 The insertion of the sutures is very simple.
- 2 The viscera are not opened till all the through-and-through sutures are put in, all but two tied, and the sero-serous suture is almost

number of sutures at uniform intervals on the stomach and intestine. They steady the parts while inserting and tying the sutures, as well as when incising the walls in addition to protecting the sutures from being cut. The suture holders keep the loops at the required length and in the order inserted. This prevents confusion as to which two should be tied together.

The special sewing machine with the retractile needle provides against damage to the mucous membrane by the point of the needle and clogging or soiling of the thread by the gastric or intestinal contents, the thread being inside the tube. The above operation is equally good for lateral anastomosis of intestines.

Any one wishing to test this could do so on a dead body with the aid of a fine Cullingworth's needle for the through-and-through sutures and an ordinary needle for the sero-serous sutures. The guide plates and suture holders are not absolutely necessary.

A CASE OF HYDROPHOBIA WITH INCUBATION OF ONE YEAR

By KAMINI KANTA DAS,

Kanaghat Dispensary, Sylhet

THE interest of this case lies in the well established incubation period of about one year. The following sentence is quoted from Osler's medicine 'It is stated that the incubation may be prolonged for a year or even two years, but this has not been definitely settled.'

A Mahomedan male, aged about 38 years, was bitten by a dog on the leg in the latter part of Poush 1319 B S (Dec 1912). Another man and a goat were bitten by the same dog. Both the man and the goat died within a month of the bite. This man, so he says, was rescued by the treatment of a mullah, and his wounds healed without any trouble. He was advised to go to Kasauli but refused as the *hakama* treatment had given him every satisfaction and he was continuing his ordinary work as usual.

In the last week of November, 1913, he had occasion to go to Karinganj where he halted a night with no warm clothing and suffered much from the cold. Next day after his return home he had much pain in his legs and could not sleep at night. The following day at dinner time he felt much uneasiness in drinking which roused his suspicions. Later he found difficulty in breathing and was spitting much saliva. In the evening he could eat nothing and could not sleep at night. The next day he began to get sudden fits lasting for a minute or two and excessive salivation. The intervals between the fits were at first about an hour, but later became shorter. The fits were excited by a breath of air or even by a smell. He had a horror of any liquid substance. He began to feel a sense of constriction round the upper part of his chest.

He consulted many mullahs but with no good result. I was called to see him on December 31d, and found him in the above described condition. The fits were irregular and more or less resembled epilepsy. He complained of pain in the loins but no rigidity was found. He had no fever. The pulse was 105 and the respirations 28 per minute. The bowels had not acted nor had he passed urine for two days. He was hungry but could swallow no food. In the intervals between the fits he was sensible, but was easily excited. On bringing in a pot of water to test him he became angry and wanted to beat us. He liked to be left in darkness.

His relatives asked me the name and prognosis of the disease. I told them it was hydrophobia but they did not believe me. In spite of every possible medical help he died on December 7th. About 1½ grains of morphia were injected in 48 hours but did not produce a moment's sleep.

SERVICE NOTES

The following promotions are made, subject to His Majesty's approval —

Majors to be Lieutenant-Colonels, I M S

With effect from 29th July, 1915

Philip Francis Chapman, MB, Alfred Hooton, Frederick Linton Blenkinsop, MB, Henry Alfred Forbes Knapton, Archer William Ross Cochran, MB, FRCS, William Wesley Clemesha, MD, James Alexander Black, MB, Roger Parker Wilson, FRCS, Victor Edward Hugh Landesay, MB, James Currie Robertson, CIG, MB, Norman Robinson Jones Ramier, Edmund Ludlow Perry, William James Niblock, MB, FRCS, Clarence Ballymore Harrison, MB, Nicholas Pucell O'Goiman Lalor, MB, and Ernest Reinhold Rost.

Captains to be Majors, I M S

With effect from 31st August, 1915

Terence Francis Owens, George Francis Innes Harkness, Gordon William Macdonachie, MB, Alexander William Montgomery Harvey, MB, Charles Isherwood Buxley and Edward Temple Harris, MB.

With reference to the notifications quoted in the margin, the promotion to the present rank of Major Patrick Laurence O'Neill, published in Army Department Notification No 559, dated the 27th June, 1913, is antedated from the 27th June, 1913, to the 27th December, 1912.

INDIAN SUBORDINATE MEDICAL DEPARTMENT

Sub-Assistant Surgeon Branch

Bengal Establishment

SENIOR Sub-Assistant Surgeon, 2nd Class, ranking as Jamadar, Sandhe Khan (E) to be Senior Sub-Assistant Surgeon, 1st Class ranking as Subadar, and

No 745, 1st Class Sub-Assistant Surgeon Saiyid Nazim Ali to be Senior Sub-Assistant Surgeon 2nd Class, ranking as Jamadar,

vice 1st Class Senior Sub-Assistant Surgeon ranking as Subadar, Ram Singh, Bahadur, invalided, with effect from the 1st August, 1915.

THE undermentioned to be temporary Lieutenants, Indian Medical Service, subject to His Majesty's approval with effect from the date specified —

Gustadji Shapurji Engineer, MB—24th July 1915

Arthur Saldanha—25th July, 1915

Sorabji Manekji Kaka—30th July, 1915

Nariman Shapurji Joshi, MB—31st July 1915

Indian Medical Gazette.

OCTOBER

INDIAN MILITARY FAMILY PENSION FUNDS

OUR readers are aware that no new members joined the I M F P Fund on or after 1st January, 1915, and that for future generations of officers of the Indian Military Services a new Fund has been arranged. For all the present officers of the Indian Army and other Services interested in the old Fund the report of Mr J Douglas Watson to the Secretary of State for India is a document of importance.

It will be remembered that owing to the surplus of subscriptions over outgoings up to the last quinquennial valuation of Sir G F Hardy our monthly subscriptions were reduced by 20 per cent, and that this lower rate has continued up to the present date.

meet this it is estimated that £496,055 of the above surplus will be required.

The occurrence of the great all-world War in which the Indian Army and Services are engaged must seriously affect the working of this Family Pension Fund, and the demands on it for officers' widows and children will be by far the greatest it has ever experienced since its institution in 1873, 42 years ago. Mr Watson's report is a refreshing contrast to the dull ones of previous actuaries, and we commend it to the attention of our Service readers. We can here only find room for a few extracts —

From these general considerations it will be evident that such an investigation (usually called a valuation) can only be of use if the Scheme is of some years standing and the number of members fairly large. The Indian Military Service Family Pension Scheme was started on 1st January, 1873, and the following table shows the growth in the number of subscribers and beneficiaries and in the "Balance at Credit of Scheme" (i.e., the accumulation of unexpended past subscriptions) —

TABLE I

| Date | Subscribers | | | Widows | | Orphans | | | | | | Balance at Credit of Scheme |
|----------------|-------------|--------|-------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------------------------|
| | Married | Single | Total | Incumbent | Contingent | Sons | | Daughters | | Total | | |
| | | | | | | Incumbent | Contingent | Incumbent | Contingent | Incumbent | Contingent | |
| 1st April 1878 | 417 | 491 | 908 | 13 | 417 | 17 | 448 | 13 | 329 | 30 | 897 | £ 75,226 |
| „ 1883 | 685 | 733 | 1,418 | 50 | 685 | 48 | 754 | 53 | 662 | 101 | 1,416 | 200,437 |
| „ 1888 | 949 | 1,115 | 2,064 | 93 | 949 | 82 | 1,029 | 104 | 1,008 | 186 | 2,037 | 3,19,346 |
| „ 1893 | 1,368 | 1,441 | 2,809 | 146 | 1,368 | 134 | 1,316 | 161 | 1,381 | 295 | 2,697 | 6,39,617 |
| „ 1898 | 1,818 | 1,830 | 3,648 | 221 | 1,818 | 158 | 1,520 | 212 | 1,741 | 400 | 3,261 | 1,007,308 |
| „ 1903 | 2,264 | 2,112 | 4,406 | 331 | 2,264 | 197 | 1,580 | 337 | 1,985 | 534 | 3,565 | 1,492,015 |
| „ 1905 | 2,844 | 2,613 | 5,457 | 437 | 2,844 | 211 | 1,775 | 439 | 2,227 | 650 | 4,002 | 2,165,649 |
| „ 1914 | 3,555 | 2,463 | 6,018 | 580 | 3,555 | 198 | 2,089 | 537 | 2,577 | 735 | 4,666 | 2,983,006 |

Mr Watson's report is forwarded to India with a covering letter, dated 28th May, from the new Secretary of State, Mr Austen Chamberlain, who informs us in his letter republished in the *Gazette of India* (dated July 24th, 1915) that Mr Watson's valuation shows a surplus on the whole scheme of £658,809.

This is an enormous surplus so we are gratified but not surprised to find that "*this surplus allows of a continuance for the present*" of the 20 per cent reduction of the full tabular rates of contributions, and this temporary reduction will accordingly be continued until the date of the publication of the next valuation and to

From this table it will be seen that the number of subscribers has increased fairly steadily to slightly over 6,000. As the Scheme is now (since 31st December, 1914) closed to new members, the number of subscribers will gradually diminish. It will be noticed also that the proportion of married members has increased, and for some time it may be expected that the number of married subscribers will increase although the total number of subscribers will decrease.

As the number of subscribing members decreases by death so the number of incumbent widows will increase for a considerable time until eventually a time will come when on the average the number of widows who become entitled to pensions each year will be less than the number of widows who cease to draw pensions owing to death or re-marriage, with the result that the number of incumbent widows will gradually tend to

decrease. Similarly the number of orphan children on the Fund will continue to increase for some considerable time.

Mortality Experience of Subscribers—The progressive improvement in the mortality of the subscribers noted in Sir George Hardy's Report has continued during the six years ending March, 1914, especially at the younger ages. This is probably due partly to the general improvement in the health conditions of Europeans in tropical climates, and partly to the fact that during this period there were no wars causing serious casualties amongst Indian officers.

The valuation balance sheet appended to this Report (appendix A) shows in detail the results of the valuation of the Scheme upon the assumptions described above and assuming that the full rates of contributions and donations as set out in Regulation 12 are payable in future. It will be seen that there was on 31st March, 1914, a surplus according to the present valuation of £658,809.

This surplus will be sufficient to permit of the continuance for the present of the reduction of 20 per cent in the future contributions and donations and leave a substantial margin to provide against possible future contingencies. It is therefore suggested that notwithstanding the possible adverse effect upon the scheme of the War (the financial effect of which cannot at present be estimated) the present reductions in subscriptions and donations should be continued until the publication of the next actuarial investigation, which investigation should not, however, be unduly postponed.

The "Balance at Credit of Scheme" represents the accumulation of the payments by members, less payments for pensions and expenses, accumulated at interest. The necessity for keeping such a balance in hand has already been explained, and for a time the "Balance at Credit of Scheme" will continue to increase. Eventually as the number of subscribers decreases and the number of pensions payable increases, the income from current subscriptions will be insufficient to pay the current pensions, and thereafter the pensions will be partly payable out of the "Balance at Credit of Scheme" which will gradually diminish and finally disappear when the last pensioner dies. It is interesting to notice that this may not happen for many years. For instance, if a member at present aged 25 were to marry at 55 and then have a daughter who lived to an old age it might be well over a hundred years from now before her pension ceased.

The main facts are the continuance of our present (reduced) rates of subscriptions till next valuation and the prospect of an early valuation after the conclusion of the great War.

Current Topics.

THE QUININE CAMPAIGN IN BENGAL

THERE was a time when some people imagined that there existed such a prejudice against

quinine among natives of India that there was little chance of their ever being induced to make good use of this great prophylactic against malaria.

The marked success however which has attended the quinine campaign in Bengal is sufficient to show that if the drug is presented to them in a palatable form and everywhere available, it will be largely made use of.

It will be remembered that in the early "nineties" the first attempt to popularise quinine was made by the Government of Bengal, and the Central Jail Alipore (now the Presidency Jail), started the industry of making "pice packets" of quinine. At first 5 grains per packet were given, this was raised to 7 grains, and finally to 10 grains. At this stage the sale of quinine, though considerable, had come to a standstill, and for some years the sales showed but little improvement. The increase in sale of 10 grains "pice packets" was largely due to them being sold under cost price, and slim shopkeepers found it the cheapest way to get quinine for their various "fever mixtures," &c.

Tablets were suggested by a sanitary officer, and the Bengal Jail Department at once offered to make tablets of quinine, and it was pointed out that no more objectionable way of taking quinine could be well imagined than by licking up 10 grains out of a small compressed envelope.

The Jail Department then set about making tablets (3½ grains each), three such to take the place of the old 10-grain "pice packet."

The new method had an immediate success and the sales again increased.

The next great advance was made by the Sanitary Department of the late Government of Eastern Bengal and Assam by their introduction of "treatments," i.e., tubes of 20 tablets, sold in one tube, in the hope that the purchaser would gradually take the whole 20 tablets and so give himself the chance of a *thorough* cure. The Government of Eastern Bengal and Assam took this suggestion up keenly, and even went so far as to import these tablets, in tubes of twenty from a great firm in London, at a very considerable cost, which, however, was considered well-spent money.

This state of affairs lasted till the great territorial changes which accompanied the formation of the Presidency of Bengal on 1st April 1912. On the formation of the new Presidency, the Jail Department, Bengal, offered to take over this work and to issue quinine in tablet form—in glass tubes and cardboard boxes exactly as was done by the famous London firm.

This was agreed to, and the work set about at once, and in a few months tablets of quinine in tubes or 'treatments' (twenty 4-grain tablets in each tube) became available and were supplied, by the Juvenile Jail Alipore to all post offices and to

all persons authorised to sell these "treatments" The following figures show to what a considerable extent this method has been taken up in the Presidency —

In 1913 318,190 tubes were sold by the Juvenile Jail
 „ 1914 1,206,700 „ „ „ in 3 months—June,
 „ 1915 600,000 „ „ „ July, and August

and it is probable that the huge figures of 1914 will be considerably exceeded before the malarial season is over

Owing to the outbreak of the war the supply of glass tubes sent out by the India Office from Belgium and Austria was stopped. The Jail Department rose to the occasion, and tin tubes were made in the Jail and by two Calcutta firms at a price somewhat in excess of the old pre-war price for the glass tubes, but the popularity of quinine and of this method of spreading its use had become so established that not only was there no falling off from the use of the certainly less-attractive tin tubes, but the demand rose higher and higher, and this year bids fair to exceed all previous demands

Nevertheless the Sanitary Department has wisely decided to recommence the issue of the "treatments" in glass tubes as soon as possible. The India Office has arranged to supply the glass tubes (but at a considerably higher price than under pre-war conditions), and the publicity given to the subject by the discussion in the Bengal Legislative Council has led to offers from indigenous firms and from enterprising agents of Japanese glass-makers. It remains to be seen if these glass tubes can be supplied in India, if they can, a not-to-be-neglected industry should spring up for making them

Another sign of the popularity of this method of using quinine is that sincerest form of flattery, imitation—already cases have been reported of imitation tablets being put on the market, the ones we have seen however only contain half the quantity of quinine. As a check on this and as an assurance that only pure quinine is used, it has now been arranged to have all the Government quinine tablets marked with the "broad arrow," and in future only these will be issued from the Juvenile Jail, Alipore

Sugar-coated tablets are also made in the Jail, and are issued on the recommendation of the Sanitary Commissioner for use in schools and for children

The quinine is absolutely pure and genuine, and is received direct from the Government Cinchona Gardens in the Darjeeling Hills and since the manufacture of tablets has begun the Juvenile Jail has sold for Government no less than 125 648 lb of quinine

The great success of this palatable method of using quinine in Bengal might well be imitated by other provinces. We have no figures at hand for up-country, but the demand for tablets for Bihar and Orissa and for Assam do not together equal one-fifth of the demand in the Presidency of Bengal. This, we believe is less due to the absence of a need for this anti-malarial measure than to an absence of propagandism

Much more should still be done in the way of spreading the use of treatments of quinine. More centres must be created, the overburdened office of the Civil Surgeon can no longer keep pace with this work. It is believed that if more centres for sale were created, a three or fourfold increase in the amount of quinine thus distributed would rapidly follow

H M's HOSPITAL SHIP "LETITIA"

WE have received a copy of the excellent code of rules and regulations drawn up for the use of the staff of H M's Hospital Ship *Letitia*, and an account of the duties will be of interest to many, as we presume the *Letitia* is managed on lines practically identical with other hospital ships who have not furnished us with their rules

Apart from the ship's captain and crew we find the hospital staff, commanded by Lt-Col C Milne, R M S, and assisted by 7 I M S officers, 3 Majors, and 4 Lieutenants. The rest of the medical staff consists of 3 assistant surgeons, 8 sub-assistant surgeons, a staff sergeant with 6 storekeepers, 3 writers, 8 medical students as dressers, a guard of 1 havildar, 1 naik, and 10 sepoy, 31 ward orderlies under a havildar, 11 cooks, 5 washermen, 3 tailors, and 12 sweepers. The staff for British patients consists of the chaplain, the matron, and 10 nursing sisters, a R A M C sergeant, 2 corporals, and 21 orderlies

The Rules then detail the duties of each officer or member of the staff. One I M S officer is the X-ray specialist, another is the surgeon specialist, and they also assist in ward duties. One of the four junior I M S officers acts as orderly medical officer for the day in turn

The Laundry and Sterilisers are in charge of a corporal and a sub-assistant surgeon. Boat drill and fire alarms are provided for and clear orders exist as to the duty and place of everyone

There are 6 wards for Indian troops and also 1 Officers' ward, also 6 wards for British troops and 1 Officers' ward (531 beds for Indian troops)

The *Letitia* is a Donaldson Lane boat. At present the I M S staff is as follows —

Lieutenant-Colonel C Milne, commanding
 Major V E H Landesay, I M S
 Major H A Williams, D S O
 Major W Lapsley
 Lieutenant I G O Moses,

* To put these figures in another form, the 1914 sales of quinine represented over 24 million tablets or over 96 million grains of quinine.

Lieutenant D P Oliver
 Lieutenant B Shah
 Lieutenant C M Ganapathy

THE CANAL ZONE MEDICAL REPORT

As usual this report is of great interest and value and we cannot do better than reproduce as many extracts as possible, for it is a report seldom seen by medical men in India

Dr H C Clark writes of the incidence of lithiasis. The negro is said to be immune from gallstones, even a surgeon like Keen never saw a case in a negro in 15 years' practice in Kentucky. It seems in the Panama zone he is almost immune from 'stone' in the kidney and bladder.

Dr Clark gives the following summary of his paper —

(1) The findings at this hospital indicate a much less frequent occurrence of biliary calculi in the negro than in the white race living in the temperate zone, but they tend also to show a much greater incidence in the negro of the tropics than in his brother of the temperate zone.

(2) Suggestive factors relative to etiology are the prevalence of enteritis, colitis, and malaria, especially the intestinal diseases.

(3) Ancon Hospital findings would also indicate a higher percentage of cholelithiasis among the Old World Spaniards than authorities are willing to grant.

(4) Calculi of the urinary passages in the negro would appear to be extremely rare.

(5) One case lends argument in favor of the systemic origin of renal calculi.

(6) Intestinal nematodes may directly be the etiological factor in certain cases of appendicitis associated with faecal concretions by producing a portal of entry for infection in the mucosa of the appendix, or indirectly by furnishing the nucleus for a concretion and its frequent sequel, appendicitis.

The same writer, Dr Clark, summarises as follows his views on pancreatitis in Panama —

(1) Five cases have been presented in four of which the fatal issue was due to pancreatic disease.

(2) Four cases occurred in males and one in a female. Two occurred in babies, all were in negroes who had spent their lives in a sub-tropical portion of the world.

(3) Cases I and IV were definitely associated with gallstones and case V is open to some doubt in the same direction. However, strongyloid infection is prone to select the duodenum and it may have played a rôle in causing ascending infection. Syphilis is also to be given a thought. Cases II and III were infections either through some vascular system or ascending the duct from the duodenum. These cases seem remarkable because they occur in negro babies of 15 months.

(4) In the autopsy series from which these cases have been drawn, 30 cases of biliary calculi have been encountered. Twenty-eight of these cases were not associated with pancreatic disease.

(5) We know that the gall ducts and the pancreatic duct enter the same portion of the duodenum and that the gall ducts are much more frequently diseased than the pancreatic duct and its gland. Does this not mean that undiluted pancreatic fluids have properties which resist infection more than bile?

Dr Beverley and Dr Lynn write of the re-appearance of dengue in the Isthmus, and

Dr Deeks reverts to his "six-day Fever" which (pace the author) is not unlike dengue. Dr W G F Baetz writes of 100 cases of acute arthritis among negroes, made up as follows — Syphilitic 63, gonorrhoeal 28, "undetermined" 6, dysenteric 2, and tubercular 1, *i.e.*, 91 per cent of venereal origin. Dr Clark remarks as follows on the question of the viability of the plague bacillus buried in quicklime —

It is shown that material infected with *B. pestis* in as large an amount as the human body could be buried in the manner mentioned, and disinterred about two years and eight months later with perfect safety. It would seem reasonably certain that the saprophytic organisms had greatly aided the quicklime and that probably the remains could have been removed with equal safety long before the time mentioned.

Mr J E Jacob has studied the action of saponaceous larvicides in brackish water, and comments as follows —

The conditions which exist immediately after the application of the larvicide may be summed up, therefore, as follows. In fresh water there is an emulsion concentrated near the surface but it steadily diffuses and consequently becomes more and more dilute. In brackish water there is a suspension of solid matter concentrated near the surface that remains unchanged except for the separation of oily matter. Whenever the emulsion applied to fresh water comes in contact with mosquito larvæ before diffusion, the effect is almost instantaneous and is eminently satisfactory, but after a short time, the toxicity is very much weakened unless enough has been added to make the proportion of the larvicide to the entire volume of water at least 1 to 5,000. In brackish water, however, the entire amount of larvicide used remains at the surface and as the larvæ must come to the surface to breathe, they must inevitably come in contact with it. Since the mineral salts in the salt water in no way lessen the toxicity of the constituents of the emulsion, as was demonstrated in the preliminary experiments, the larvicide must be more efficient in brackish water than it is in fresh water.

POTASSIUM PERMANGANATE ITS COOLING EFFECT UPON THE SKIN

HAVE any of our readers discovered the cooling effects of permanganate described by Dr Bryant in the following extract? Incidentally we may note the very thorough methods in force for disinfecting fruit, etc., during the prevalence of cholera —

In the *Boston Medical and Surgical Journal* of May 27, 1915, Bryant writes as follows on this subject —

If one wishes to experience in the hottest and wettest weather available a sensation as of a drop in temperature of say ten degrees with corresponding relief from the effects of humidity, it is necessary only to take a bath in or rub down with a weak solution of potassium permanganate. This may be followed by a shower or wash with plain water. The result will justify the effort of the procedure, and it is especially valuable as a means of promoting sleep at night.

This proposition very likely is known to many, but it is at least in this case the accidental discovery of the author and seems not to be known to any of his medical friends unless through personal conversation on the subject. For this reason, and with a marked increase

in comfort so easily obtainable, it has seemed worth while to present this simple expedient in the hope that a few persons, and particularly invalids, may thereby receive benefit from its application.

Arriving one day on an errand of medical necessity at Batavia, some years ago, in the midst of the Javanese summer, the writer found the climate both hot and wet, as was to be expected. One of the provisions for the entertainment of the tourist was, and doubtless still is, endemic cholera. This necessitated certain precautions. For instance, sulphonaphthol was used rather freely upon floors, and fruit for the hotel table was always exposed to live steam. Also, the bath water always contained enough permanganate to give it a good reddish-brown tint. According to the custom of the country, a splash bath is taken: one stands upon a wooden grating, and with the aid of a dipper throws over one's shoulders from a large tub at the side, which is refilled daily. Permanganate is used in order to dampen the ardor of what germs may be present in this tub of water. All this is perfectly proper. The surprising feature of the use of this solution was its immediate cooling effect, lasting for some hours. At first it was dubious if the permanganate was really the active agent in producing the sensation of the drop in temperature, but repeated use of the solution for bathing purposes left no room for doubt, and recurring summer heat, both in this country and in Europe, has only provided opportunity for confirming the experiment and proving that permanganate has a very active value as a cooling agent.

The fact has been sufficient, but doubtless the mode of action is at least in part by the removal of all grease from the skin, with better opportunity for loss of heat from the body. To try the experiment is to be convinced. It is only necessary to buy a few crystals of permanganate and make a saturated solution. Pour enough of this solution into a wash bowl to give the water a pale pink or reddish tint, rub down with a wash cloth, and follow with a shower or bath as desired. A solution strong enough to be effective can be used without discoloring the receptacle, or if necessary any stain is easily removed by the use of a little oxalic acid solution. Bryant asserts that potassium permanganate in weak solution is a valuable wash for external application in hot humid weather.

WATER DRINKING AT MEALS

In *The Boston Medical and Surgical Journal* (June 24th, 1915) Dr. E. G. Cutler has a useful article on water drinking and its effects. His remarks are largely based on the elaborate experiments of Hawk (*Arch. Int. Med.*, 1911). Hawk and Fowler especially investigated the subject of the copious ingestion of water with meals, and they regard popular statements about the harmful influence of water drinking *with meals* as misleading.

The daily drinking of three litres of water *with meals*, for a period of five days, by a man twenty-two years of age, who was in a condition of nitrogen equilibrium through the ingestion of a uniform diet, produced the following findings:—

1. An increase in body weight, aggregating two pounds in five days.
2. An increased secretion of urinary nitrogen, the excess nitrogen being mainly in the form of urea, ammonia, and creatine.
3. A decreased excretion of creatinine and the coincident appearance of creatine in the urine. The

decreased creatinine output is believed to indicate that the copious water drinking has stimulated protein catabolism. The appearance of creatine is considered evidence that the water has caused a *partial* muscular disintegration resulting in the release of creatine, but not profound enough to yield the total nitrogen content of the muscle. The output of creatine is, therefore, out of all proportion to the increase of the excretion of total nitrogen.

4. An increased output of ammonia, which is interpreted as indicating an increased output of gastric juice.

5. A decreased excretion of faeces and of faecal nitrogen, the decrease in the excretion of faecal nitrogen being of sufficient magnitude to secure a lowered excretion of both the bacterial and the non-bacterial nitrogen.

6. A decrease in the quantity of bacteria excreted daily.

7. An increase in the percentage of total nitrogen appearing as bacterial nitrogen.

8. A lower creatinine co-efficient.

9. A more economical utilization of the protein constituents of the diet.

10. The general conclusion to be reached as the result of this experiment is to the effect that the drinking of a large amount of water with meals was attended by many desirable and by no undesirable features.

Von Mering's experiments as to the passage of water through the stomach are as follows:—

As soon as water is introduced into the stomach, it begins to pass into the intestine, being forced out in a series of spurts by the contractions of the stomach. Within a comparatively short time practically all the water can be recovered in this way through an artificial duodenal fistula, none or very little having been absorbed in the stomach. For example, in a large dog with a fistula in the duodenum, 500 cc. of water were given through the mouth. Within 25 minutes 495 cc. had been forced out of the stomach through the duodenal fistula. This result is not true for all liquids, alcohol, for example, is absorbed readily.

Hawk, in a series of beautiful and convincing experiments, arrived at the conclusion that copious water drinking caused an increased excretion of nitrogen and phosphorus in the urine. The increase in the amount of nitrogen eliminated is due, *primarily*, to the washing out from the tissues of the urea previously formed, but which has not been removed in the normal processes and, secondarily, to a stimulation of the proteid catabolism.

Dr. Cutler concludes as follows:—

In conclusion, therefore, we may say as the result of clinical observation, supported by laboratory research, *that it is advisable for people in ordinary health to drink water as desired with meals, to the extent of from 2 to 4 or more tumblers at each repast, and that we may expect a continuance of good health in so doing or an improvement even, provided that the food taken be first thoroughly masticated and insalivated and then swallowed, and that the water be then ingested.*

CHOLERA CARRIERS.

MAJOR E. L. MUNSON, the well-known sanitarian of the United States Army, has an interesting article in *The Philippine Journal of Science* (B) (January 1915) on cholera carriers, from which we take the following extract:—

But we must bear in mind the possibility that an apparently mild strain of cholera germ, under conditions

of environment as yet not fully understood by us, may acquire a high degree of virulence and change the type of disease from one of a relatively benign character to one of a most fatal type. This adds to the necessity of seeking out and removing the concealed sources of infection found in cholera carriers.

One of the most apparent lessons to be learned from these recent experiences relates to the possible period of latent infection in cholera and its bearing on the period of incubation and quarantine heretofore accepted for health work. It is undoubtedly true that the five-day period usually accepted for incubation and quarantine ordinarily will suffice for the control of infection in the majority of cases, but it is equally true that such a period does not hold good in a very considerable number of instances, which sheds much light on cholera situations not otherwise readily explainable. For example, convict 30351, who died of cholera, might have travelled halfway around the world, scattering his infection broadcast during his eighteen-day period as a carrier, and died of true cholera in a place many thousands of miles from any other source of infection. There is a warning in such cases that health officers all over the world would do well to heed.

In conclusion, in such outbreaks as that recently in Manila, the carrier would seem to be not only the most numerous but the most insidious and dangerous sources of infection. The prompt eradication of a general cholera infection, therefore, includes the detection and isolation of carriers as a scientific pre-requisite.

THE DUTY OF THE MEDICAL MAN IN CASES OF CRIMINAL ABORTION

THE following resolutions have been passed by the Royal College of Physicians of London and will be hailed as a guide in a most difficult question by medical men confronted with such —

The following resolutions have been passed by the College concerning the duties of medical practitioners in relation to cases of criminal abortion. The College is of opinion —

(1) That a moral obligation rests upon every medical practitioner to respect the confidence of his patient, and that without her consent he is not justified in disclosing information obtained in the course of his professional attendance on her.

(2) That every medical practitioner who is convinced that criminal abortion has been practised on his patient should urge her, especially when she is likely to die, to make a statement which may be taken as evidence against the person who has performed the operation, provided always that her chances of recovery are not thereby prejudiced.

(3) That in the event of her refusal to make such a statement, he is under no legal obligation (so the College is advised) to take further action, but he should continue to attend the patient to the best of his ability.

(4) That before taking any action which may lead to legal proceedings, a medical practitioner will be wise to obtain the best medical and legal advice available, both to ensure that the patient's statement may have value as legal evidence, and to safeguard his own interests, since, in the present state of the law, there is no certainty that he will be protected against subsequent litigation.

(5) That if the patient should die, he should refuse to give a certificate of the cause of death and should communicate with the Coroner.

The College has been advised to the following effect —

(1) That the medical practitioner is under no legal obligation either to urge the patient to make a state-

ment, or, if she refuses to do so, to take any further action.

(2) That when a patient who is seriously ill consents to give evidence, her statement may be taken in one of the following ways —

(a) A magistrate may visit her to receive her deposition on oath. If possible, facilities for being present should be given to the accused person or his representative.

(b) If the attendance of a magistrate cannot be secured, she may make a statutory declaration before a Commissioner for Oaths, who can be asked to visit her for that purpose. The function of the Commissioner is to administer the declaration, and not to draw it up.

(c) Should the patient be firmly convinced that she is dying, and only in these circumstances, she may make a dying declaration. Such a declaration may be made to the medical practitioner, or to any other person. It need not be witnessed by a third party, nor signed by the patient, though it is desirable that both should be done.

A CHLOROFORM PIONEER

RESIDENTS of Calcutta are well aware that for the practical use of chloroform the world is indebted to an old Calcutta resident, Dr David Waldie, and the Asiatic Society of Bengal has a tablet to his memory in their rooms.

More recently a handsome bronze medallion has been put up on the front of the house at 67, High Street, Linlithgow, Scotland.

The wording on the medallion is as follows —

"David Waldie, Surgeon, L.R.C.S., Ed., and chemist, member of Asiatic Society of Bengal Born Linlithgow 1813. Died Calcutta 1889.

To him belongs the distinction of having been the first to recommend and make practicable the use of chloroform in the alleviation of human suffering."

THE ECONOMICS OF MEDICAL PRACTICE

WE quote the following extract from an interesting address by Dr H. C. Shutter to a meeting of the Missouri State Medical Association (*Journal of the M. S. M. A.*, July 15, p. 299).

Many at first grateful patients allow their gratitude to evaporate very quickly, soon forget the debt they owe the doctor, and often become his worst enemies. Insistence on prompt payment for services rendered enables the doctor to meet promptly his own financial obligations, and I will venture the statement that the physician who charges a good fee for his work, collects it within a reasonable time and promptly pays his own debts, other things being equal, stands much higher in his community, and has much more influence than one who does just the opposite.

A good many people labour under the false belief that all doctors make a great deal of money, and that the only reason they do not all get rich is because they spend their money in high living or in other ways instead of saving it. We, who are on the inside and know better, should at every opportunity try to dispel this false impression, and explain to such persons that a doctor cannot in the very nature of his work make very

*The Registrar of the College now states that the College is taking further legal advice on these points.

much money, for unless he has a very rich clientele, so that when he gets more work than he can do, he can raise his fees and thereby cut out his poorer patrons, his ability to earn money is limited to just what one man can do with ordinary fees. The business man, when his business grows to proportions beyond his powers to attend to it himself, hires clerks and managers, and perhaps establishes branches, and can thus very effectively spread his efforts and influence over a very large business at great profit to himself.

Profitable fees for the doctor must include interest on the cost of his education, equipment, cost of means of transportation, besides the expense of running his office, surgical and medical supplies, etc., for all of these are at work whenever he renders any professional service, and most of them are constantly operating when he has nothing to do. Therefore, unless a doctor collects his fees with reasonable promptness, he cannot give his patrons his best services, nor discharge his duty either to his family or to society.

The practice of medicine and money-making being, as we have seen, in large measure incompatible, because the busy doctor has neither the time nor the knowledge necessary to the success of the financier or the speculator, it is all the more necessary that he adopt the slogan of the day—safety first—in all his investments, and steer clear of the many leeches and parasites who invade his office with their glittering bait and get-rich-quick schemes, and too often succeed in separating him from his hard-earned money.

HOW CASUALTY LISTS ARE COMPILED—Eye-witness present at General Headquarters, in describing the work that devolves upon the Adjutant-General's Department, says that among its duties is that of recording and reporting casualties. A proportion of soldiers and officers disappear without leaving any trace of their fate. With regard to the others, before a man's name is sent home as a casualty it is necessary to identify him absolutely and to ascertain his name, initials, regimental number and unit, and what has happened to him. This is done at the base by a small staff detached from each unit or branch of the army in the field, which is employed in checking and verifying every piece of information received from the front regarding any member of its own unit and in maintaining a complete record of all its members in the shape of a sort of life-history. Thirty copies of the casualty lists are sent home duly, amounting sometimes to 3,000 sheets of typed matter. The adjutant-general's branch is also responsible for the disposal of the effects and the wills of dead men and for their verification, and for ascertaining their place of burial, in which it is much assisted by the Graves Registration Commission, a small party of gentlemen who give their time voluntarily to the work of collecting information about the dead. They also furnish the graves with wooden crosses stencilled with the names of the buried and the date of their death. Finally, a not inconsiderable portion of the staff at the base is continuously and solely employed in replying to queries about casualties.—*Lancet*

LIVIGNO in the *Riforma Medica* (Naples, June 19th, p. 677) had 147 cases of cholera in his charge during the 1913 epidemic in Italy. Serotherapy was applied in sixty-one of the severe and in twelve of the milder cases. The mortality was 55.74 per cent in the sixty-one grave cases, while all died in the seventeen other severe cases not given serum treatment. In most of the cases he supplemented the serotherapy with intravenous injection of a hypertonic salt solution according to Roques. The latter had a remarkable action on the

vomiting and diarrhoea, but all recovered of the six patients with a very severe form of cholera who were given the serotherapy alone. The anticholera serum has an unmistakable antitoxic action and thus effectually supplements the hypertonic solution.

In these busy days but few will remember that it is just thirty years since Pasteur treated his first case of mad dog bite. On 4th July 1885, Joseph Meister, an Alsatian boy, was severely bitten, and on 6th July Pasteur used his protective treatment for the first time on a human patient. As Stephen Paget has said there ought to be a medical calendar to remind us of such dates. In September, 1884, Pasteur had proved his case and was awaiting a patient to put it to the proof.

The first Pasteur Institute was opened in Paris in 1888, possibly the 30th or 31st is the Assam Institute, now almost ready for work.

NOTICE

WILL the gentleman who sent us for publication a typed paper entitled *Notes on Three Cases of Appendicitis* and a note on a *Case of Delirium* occurring in sepoy of the Bhamo Battalion Military Police kindly send us his name? We have had the paper some months in hand in the hope that the author whose name is not attached to any portion of the manuscripts would write to us about it.

Reviews.

R. Ghosh's Treatise on Materia Medica and Therapeutics.—Edited by Lt-Col B H DEARE, I M S, and Dr B N GHOSH Calcutta Hilton & Co, 1915 6th Edition (Price, not stated)

WE have previously welcomed successive editions of Ghosh's *Materia Medica*, and we have no hesitation in stating after an examination of not less than a dozen books on *Materia Medica* produced as a consequence of the 1914 edition of the British Pharmacopœia that we have seen few equal to, and none better or more useful to, student and practitioner than the new 6th Edition of Ghosh's Treatise edited by Lt-Col Deare, I M S.

The book is thoroughly up-to-date, well printed, and well arranged, and we think the editor has done wisely in abandoning the alphabetical arrangement of the drugs and in classifying them according to their pharmacological and therapeutic uses. The text has been carefully revised, and the printing is a credit to the Calcutta firm which publishes the book. Major E W D Greig's chapter on Serum and Vaccine Therapy is excellent.

We have no hesitation in cordially commending this new standard work, and no better text book could well be put into the hands of senior students

Vicious Circles of Neurasthenia and their Treatment—By JAMESON B HARRY, M A, M D (Cantab) London J and A Churchill, Pp 90, with 5 plates

VICIOUS circles are very apt to be associated with neurasthenia, and the examples given in this book of the association are very numerous, far more numerous than one would expect to be the case, and yet Dr Harry has avoided the charge of being obsessed by his subject, since he has in nearly every case introduced, as he puts it, a quotation from some standard authority to back his own experience. Although he disclaims any suggestion that his list of circles in neurasthenia is complete, there can be very few which are not dealt with. Apart from those associated with psychoses and with the sense organs, a large number occurring in connection with the vascular, respiratory, digestive, and genito-urinary systems are considered, and there is a chapter on artificial circles, that is the effects of drugs, pessaries, sounds, and such like.

The chapter on the "Breaking of the Circle" is a very good one, giving the principles which must guide treatment in these cases. The whole ends with a classic smack, though it is probably fortunate for most of us that we are not left unaided to decipher the Greek quotations.

An Index of Prognosis and End-results of Treatment,—Edited by A. RENDLE SHORT, FRCS, M D Bristol, 1915 John Wright & Sons, Ltd Price 21s

THIS is a unique book and will necessarily prove of use to all medical men. It has been a very laborious work to compile it.

Its aim has been to set forth the results of various methods of treatment so that the practitioner may be able to form a reliable and unbiassed opinion as to the prospects of relief to the patient and the risks thereof.

Mr Rendle Short has been assisted by many well-known writers. The subjects are dealt with in alphabetical form, but there is also wisely added a supplementary index which will enable subjects to be more easily found.

One great feature of the book is the attempt in each case to forecast the end-results, and this is of especial value in surgical cases. Published end-results are apt to be unreliable, *post hoc* is not always differentiated from *propter hoc*, results are often too hastily estimated, and are vitiated by too early reporting, or the figures are too few on which to base a reasonable opinion. An old Indian medical writer, Sir Ranald Martin, once said "all methods of treatment are successful in the hands of the man who introduces them" and

all of us will remember many instances. There are fashions in medicine and surgery as in millinery, and this is too often forgotten by the harassed and anxious practitioner. Enthusiasm is good, even necessary but it does not tend to the production of reliable statistics, and in the present day the understandable but dangerous rush for priority is often, to say the least, misleading.

Such a book as this by Mr. Rendle Short must necessarily contain many instances of such errors.

We need only open the book at any page to show its extreme value. Take abdominal injuries on the first page—say rupture of the pancreas—a rare injury—he quotes figure of Mikulicz, 24 cases, 13 died without operation, 11 operated on, 7 cured, or turn to the 24 pages on appendicitis the reader will here find a masterly exposition of the subject of prognosis from all points of view, result of operation, 1,000 cases, mortality 32 per cent, prognosis on different days of attack, showing the value of early operation, complications, secondary abscesses, fistula, thrombosis, pulmonary embolism, obstruction, jaundice, toxæmia, pylophlebitis, hæmorrhage, hæmatoma, bacteriology, pregnancy, and appendicitis, when to operate, recurrence, quiescent period, imperfect relief after operation, recurrence after an abscess, sex, lesser liability of females, age, mortality greatest in earlier and later periods of life, chronic appendicitis, ulcers, gallstones, etc. All these points are ably discussed and illustrated by cases and statistics.

It is the same with other diseases. The book is one which no medical man can afford to be without. It is possible that in the future the prognosis and the end-results may, by the progress of the science and art of medicine, become more favourable, even then this great book will be a record of what physicians and surgeons were able to do in the long-to-be-remembered year of 1915.

Text Book of Forensic Medicine and Toxicology—By R J M BUCHANAN, M D (Edin.) E & S Livingstone, 1915.

VERY recently we noticed the appearance of Professor Hope's excellent book on Public Health, and now a companion volume on "Forensic Medicine" has appeared from the pen of Professor Buchanan of Liverpool University, both of these volumes constituting the eighth edition of a long popular work, "Husband's Forensic Medicine."

The work has been thoroughly revised, and the fact that it has been written for junior practitioners and students has not been lost sight of.

The book necessarily follows familiar lines. We are glad to see that the early appearance of adipocere (which a Cambridge Professor some years ago challenged) in the damp climate of Bengal is admitted.

The book is a good one and well worthy of the attention of students. It will hardly be expected that it will replace books written specially for India such as the new edition of Waddell and Lyon's book, or the Indian Medical Jurisprudence books of Barry, or Gibbons, or Hehn. For English students it is certainly excellent. It is well printed and turned out by the publishers.

A Basis of Surgical Ward Work—By R. L. SPITTEL, F.R.C.S. Colombo Ceylon Examiner Press, 1915

THIS is altogether an excellent little book of its class. There are many surgical handbooks in existence, but in none we know of the details of ward work given so full as in the little book by Mr. Spittel, the Surgeon of the General Hospital, Colombo.

The book is divided into two parts—the first, general, dealing with the sick room, sterilisation, preparations for operation, after treatment, therapeutic technique (which includes, cupping, lavage, enemata, colonic irrigation, proctolysis, washing out the bladder, etc.). The chapter on treatment of the wound deals with asepsis, infected wounds, phlegmon, sinuses, Beck's paste, Bier's hyperæmia, vaccine therapy, etc.

The second part deals with special operations, and will be found of use to the qualified man as well as to the student. It deals with many subjects, such as skin grafting, after treatment of fractures, amputations, scalp wounds, operations on the tongue and jaw, tracheotomy, operation on thyroid gland, cancer of the breast, empyæma, abdominal operations, especially the after-treatment, appendicitis, herniotomy, abscess of the liver, gall bladder, operation on rectum, piles, bladder troubles, kidney, lithotomy (from the relative length of descriptions given we gather that in stone cases Mr. Spittel follows the general abdominal surgeon rather than the expert litholapaxist), and urethral operations. Gynæcological operations occupy chapter XV. Disease of the ear, nose, and throat are also described. An appendix gives useful details about the strength of solutions, pastes, injections, and several prescriptions, especially for troubles like fever, dysentery, hookworms, which are apt to complicate surgical cases in the tropics.

We can recommend this little book to junior practitioners and to senior students or resident medical officers. It is practical and is up to date, and the teaching generally is sound and to be trusted.

Aids to Tropical Medicine—By G. E. BROOKE, 2nd Edition. Baillière, Tindall & Cox, 1915. Price 3s 6d.

THIS is a useful little book, and in its 220 pages contains a generally accurate boiled-down extract of bigger books on tropical

medicine. The second edition has been carefully revised, as much has happened since we reviewed the first edition in 1908.

Three-day fever is given a chapter, its synonyms being the Chittal Fever of MacCarrison, Sandfly or Phlebotomus Fever; a good summary of the Seven-day Fever of Rogers is given, but no hint is given as to its possible relationship with dengue. The account of dengue is good. Captain Harnett's work on Eosinophilia is referred to, but the description given is necessarily brief and too condensed for such a protean disease. Epidemic dropsy is briefly described, but no hint of its possible relationship with beri-beri, or of its being a deficiency in vitamin disease.

In the section on dysentery the division into endemic or amæbic and epidemic or bacillary is repeated. This is a very misleading division. Epidemic dysentery is probably bacillary, *e.g.*, outbreaks due to infected water supplies (as quoted in textbooks on *Hygiene*), but Jail dysentery in India is often endemic, and seldom or never becomes epidemic, and all experts have stated that Jail dysentery is bacillary—where indeed it is not merely catarrhal and due to digestive derangement due to dietetic changes or excesses. This crude division is useful in a small book like this, but should not be given without qualification.

On the whole the little book is a thoroughly good one and very useful to students reading for an examination.

First Aid in Accidents—By V. RAMA RAU G. A. Natesan & Co., Madras

THIS is a very useful little book by Dr. V. Rama Rau of Madras, who since the war broke out has been instructing large classes of persons in First Aid. The book is intended not to replace the manuals of the St John Ambulance Association, but rather as a commentary on the official publication. It is a well compiled little book with many useful illustrations and an index.

It should be found very well adapted for First Aid classes, and is written in simple and non-technical language.

Surgeon-General Bannerman, C.S.I., has added a preface.

Annual Report of the Japanese Navy.

WE have received the report of the health of the Imperial Japanese Navy in 1911, 1912, and in 1913. For some reasons best known to themselves they have decided not to publish after 1911 the reports in English, but only in their own vernacular, thereby cutting themselves off from 90 per cent. of civilised humanity. "Tis true, 'tis pity," etc. We have the 1911 report before us, the next two are sealed books, and it is hardly worth commenting upon such

ancient history as 1911. The report is elaborately statistical and consequently extremely dull

The Intervertebral Foramina in Man—
CHICAGO SCI PUBLISHING Co, 1915

THIS is a subject of little attraction to the vast majority of medical men. Dr H Swanbeigh is an enthusiast and has published a larger book on the intervertebral foramina of which this elegantly printed little book is a supplement. The book is beautifully illustrated, the main thing to note is that the shapes of the intervertebral foramina in the several regions are distinctive from one another, but all in each region are similar, all being more or less oval with the greatest diameter in a supero-inferior direction, and speaking generally they increase in size from above downwards being smallest in the cervical and largest in the lumbar region. The same author has published an atlas of 101 pages on the same subject.

The enterprising Chicago firm of publishers attach an insurance coupon insuring the purchaser against loss of the book on paying a premium of 2½ cents!

A Simple Method of Water Analysis.—By
J C TRESH London 8th Edition J & A
Churchill Price 2s 6d net

THIS excellent little book has attained to an eighth edition. The author's large books on water supplies are well known.

The present edition has a chapter on the use of chlorine in purifying water, and by use of B and W's *tablords* a simple and effectual method has been devised.

As usual, Dr Tresh's remarks on the interpretation of the results of analysis are very important and useful.

The little book is admirably adapted for medical officers in rural districts and can be confidently recommended.

Reports from the Laboratory of the College of Physicians, Edinburgh.—Edited by J J
GRAHAM BROWN and JAMES RITCHIE Vol XIII
Oliver & Boyd, Edinburgh, 1915

THIS volume contains the contributions of workers made during the years 1913-14. The generous financial support received by the Laboratory from the Carnegie Trust for the Universities of Scotland is acknowledged. The Laboratory for the last 12 years has been recognised as forming an integral factor in the organisation of Research Scheme of the Trust. As a result of this help it has been enabled to expand its activities in a way which otherwise could not have been possible. This Research Scheme is extremely interesting as indicating that it is beginning to dawn on the people of Great Britain that it is imperative that a real career should be

offered to efficient workers in Science, this idea has been much more fully grasped in Germany. Let us hope that the British nation are now fully alive to this conception, and will go forward and outstrip all competitors and become the foremost scientific nation of the world.

The present volume maintains the best traditions of its predecessors. The list of papers shows the range of the researches, there are papers dealing with protozoology, anatomy, biological chemistry, pathology and bacteriology by 18 authors. There is an interesting monograph by M'Gowan on the disease of sheep called "Scrapie". In this paper he makes use of the word "epizootology". This word is not to be found in the large New English Dictionary which is being published in Oxford, and possibly the Dictionary is already out of date. The various papers cannot be referred to in detail in this short review, but they would well repay perusal by those interested in the subjects.

ANNUAL REPORTS.

PUNJAB HOSPITALS

THE last report to be signed by Colonel Bamber on the work of the Punjab Hospitals is as usual a record of fine surgical work. The following extract shows the splendid surgical work done in the Punjab in 1914.—

During the last year, 260,775 operations were performed against 250,261 in 1913. The selected operations numbered 37,048 as against 36,590 in 1913.

Of the 253,255 patients operated on during the year, 529 died, giving a death-rate of 20 per cent as compared with 18 in 1913 and 22 in 1912.

The districts in which the largest number of selected operations was performed are Ferozepore, 5,700, Amritsar, 3,273, Jullundur, 2,440, Hissar, 1,994, Shahpur, 1,743, Karnal, 1,739 and Gurgaon, 1,616.

The number of operations performed for cataract was 14,919. Of the 12,938 patients operated upon, 12,336 obtained good vision, the percentage being 95.58, as compared with 93.99 in 1913. Senior Sub-Assistant Surgeon Mathia Das of Moga maintained his reputation by performing the largest number of cataract operations, viz, 3,309. He has made Moga a very famous surgical centre, and patients flock to him from far and near. Lieutenant-Colonel H Smith, VHS, IMS, Civil Surgeon, Amritsar, comes next with 1,266 (in nine months). The other operators who distinguished themselves by performing a large number of operations for extraction of lens are Sub-Assistant Surgeon Allah Bakhsh, Tohana, 830. Sub-Assistant Surgeon Nand Lal, Bhalwal, 683, Rai Sahib Diwan Singh Duggal, 450, Sub-Assistant Surgeon Balmokand, Shahabad, 429 and Assistant Surgeon Muhammad Din, Rupar, 423.

There were 2,115 operations performed in 1914 for removal of stone in the bladder against 2,273 in 1913. The Multan District is usual heads the list with 230, of which no less than 180 were performed at the Civil Hospital, followed by Deri Ghazi Khan with 191. Senior Assistant Surgeon Ram Narayan who performed the largest number deserves commendation.

The Indian Medical Service Officers who performed the largest number of selected operations during the year

as Lieutenant-Colonel H Smith, 2,403, Lieutenant-Colonel W R Clark, 110, Lieutenant-Colonel A Coleman, 388, Major H Ainsworth, 332, and Captain R H Bott, 206

Among the Indian Civil Surgeons Lala Sri Ram performed 509 selected operations, followed by Khan Sahib Diwan Ali with 436 and Dr D N P Datta with 204

Among the Assistant Surgeons, the following performed the largest number of selected operations — M Muhammad Din, 947, Lala Bij Nathi, 676, Rai Sahib Diwan Singh Duggal, 643 Pandit Nand Lal, 521, Mr Muhammad Ismail, 431, Bhai Dalip Singh, 366, S Nazir Hussain, 317 Bhai Amrik Singh, 292, Lala Uday Bhan, 286 Lala Raja Ram Gobhila, 282, Pandit Hari Chand, 274 Lala Guranditta Kapur, 229, Mehta Kewal Kishan, 228, and Mr Chandu Lal, 210

The foremost among the Sub-Assistant Surgeons who performed the largest number of selected operations is Lala Mathia Das of Moga, with a total of 4,734. His is a unique record of work for the year, and he deserves every credit for it. Other Sub-Assistant Surgeons whose names need special mention are — Pandit Nand Lal, Bhalwal, 1,019, M Allah Bakhsh, Tohana, 897, Pandit Balmokand, Shahabad, 876, Pandit Daulat Ram, Mananwala, 525, Lala Gokal Chand, Kahlon, 286, Lala Pala Ram, Pakpattan, 260, Lala Ganga Ram, Muktsar, 256, Bhai Amrik Singh, Samiala, 241, and M Nazir Ahmad, Hansi, 215

Statement G gives details of these operations. We note only a few of the most important major operations — Tumours (in round numbers), over 2,900, eye removals, 1,171, abscesses, 66,000, ligature of arteries 48, operation on bones, over 7,000, on joints, 1,600, amputation, over 2,200, on the skull, 53, on the brain, 9, on spine 12, on the face including eyelids, over 12,000, cataract, nearly 15,000 (with only 12 lacerations of the opaque capsule), excision of breast, 49, operation on the abdomen, besides 1,062 tappings, we find 177 abdominal sections, 5 sutures of intestines 32 for intestinal obstructions, 6 "for disease of vermiform appendix," and 53 other operations on appendix (why so few?), for hernia—strangulations 71, radical cure 246, for abscess of the liver, 101, for hydatid cyst, 18, kidney operations, 8, for piles, 513, for stone—cystotomy 71, lithotomy 205, lithotripsy 21, litholapaxy 1,888 (no separate figures for the suprapubic operations which is included vaguely under cystotomy), encirclements 275, paraphimosis 243, phimosis 416, "hydrocele tapping radical" (*sic*) 285 (a useless method of recording), ovariectomy, 80, oophorectomy, 17, removal of cysts, 43, removal of uterus, 51, and "removal of whole uterus" 43, caesarian sections and Poro's 23

This table is badly in need of revision. The headings given are hopelessly misleading in many cases

PUNJAB SANITARY REPORT

This report is signed by Colonel C J Bamber, the lately retired I G of Civil Hospitals, Punjab, who took over the duties when Lt-Col S Browning Smith went on military duty

The variations of plague incidence are shown in the following table of deaths from plague since 1903 —

| | |
|------|---------|
| 1903 | 210,697 |
| 1904 | 402,950 |
| 1905 | 390,233 |
| 1906 | 104,863 |
| 1907 | 666,501 |
| 1908 | 10,106 |
| 1909 | 45,064 |
| 1910 | 169,867 |
| 1911 | 198,669 |
| 1912 | 35,123 |
| 1913 | 20,231 |
| 1914 | 73,627 |

Attitude of people—The attitude of the people towards plague measures varies. When there is danger of infection, the people as a rule accept assistance and co-operate with the special medical staff. When there is no immediate danger of plague infection the people do not want to be worried with plague measures. In judging the attitude of the people we have to take into account the ability and energy of individual medical officers. Some officers on special duty do ten times more work than others. They work in harmony with the people smoothly and efficiently. The people do not want to die of plague and the object of the special medical staff is to prevent plague, so the staff and the people work together with the common object of preventing the disease—they are friendly allies fighting plague. A few officers on special duty are unable to enlist the sympathies of the people to any such extent. It is much easier to go from village to village and enter in a diary that "the people are adverse to all plague measures" than it is to overcome any prejudices that may exist and set to work to prevent the disease. I am well aware the people are careless and apathetic in sanitary matters all the same. I regret I am forced to the conclusion that "the prejudices of the people" is sometimes used to cloak incompetence.

RELAPSING AND TYPHUS FEVERS

There was a sharp epidemic of relapsing fever in the village of Bhatsana (Rewari Tahsil) in the Gurgaon District which caused 40 deaths from among slightly over 100 patients during the period from the month of January to 26th April, 1914. On enquiry it was found that the disease had started after the death of a man who became ill 3 or 4 days after his return from the Mona Remount Depot near Sargodha where he was employed in one of the regiments. Some blood smears and capsules from five persons were sent to the Pasteur Institute, Kasauli, for examination by the Civil Surgeon there, and of these only two showed spirochaeta.

An epidemic of typhus fever occurred at Kot Chandra in the Mianwali District, a small village on the river bank, and the neighbouring villages of Khudozai and Jalalpur. Nearly 142 cases and 59 deaths occurred from the disease from January to the middle of May.

SANITATION OF PILGRIM FAIRS

The following is an excellent record —

The attendance at the Sun Eclipse Fair held at Thanesar on the 21st August was not as large as was expected, the attendance being about 130,600 compared with that of 262,000 in October, 1911. Cholera was present in the province, and the issue of railway tickets to persons attending the fair from infected areas was prohibited. Pilgrims arriving by tram and the main roads were medically inspected and those found obviously ill were not allowed to enter the fair area. The Civil Surgeon, Karnal, was in charge of the medical and

sanitary arrangements and the Sanitary Commissioner supervised the sanitary arrangements which were very satisfactory. Only one imported case of cholera from Ludhiana District occurred. He was a police constable and was treated in the isolation hospital there. There were only two deaths, one from cholera and the other from dysentery, and only 18 in-door and 1,921 out-door patients treated at the fair, no accidents occurred.

The Government Resolution comments as follows.—

The superior staff of Indian Medical Service officers employed on sanitary duties was much reduced during the second half of the year in consequence of the war, and there have been several changes among the incumbents of the office of Sanitary Commissioner, Lieutenant-Colonel Browning Smith, Major Perry, and Colonel Bamber, having held the office at different periods, the last named in addition to his duties as Inspector-General of Civil Hospitals. There have been frequent changes also in the appointments of the Deputy Sanitary Commissioner and the Additional Deputy Sanitary Commissioner. In spite of this the Sanitary Department has continued to carry out its duties with vigour, and the Lieutenant-Governor desires to express his appreciation of its services, and to thank Colonel Bamber for an interesting report.

BURMA HOSPITALS

The report for 1914 is submitted by Colonel A. O. Evans, I.M.S.

The notes on surgical operations are as follows.—

The total number of surgical operations during the year under report was 51,491 showing an increase of 6,018 cases over that of the previous year. The death rate among the patients operated on was 0.61 per cent in 1914 as compared with 0.68 per cent in the preceding year. This satisfactory result is possibly attributable to several headquarters and other hospitals being provided with up-to-date operation rooms and equipment and also to generally increased recognition of the value of strict asepticism. In Rangoon the most notable features are (1) an increase of 53 operations for 'plating' of fractures, mostly compound, without any fatality and in 90 per cent with excellent results, (2) of 306 general abdominal operations with a mortality of 44 or 14 per cent, (3) of 158 abdominal gynaecological operations with only 6 deaths. The apparently high mortality in the General Abdominal Operations is attributed to the admission of cases in which acute intestinal obstruction of some days' standing as well as grave abdominal injuries had been noted. Deducting 21 deaths accounted for in this way, a more satisfactory mortality, $\frac{1}{2}$, 8 per cent for ordinary abdominal complications is arrived at.

Great attention has been paid in Burma of late years to the prevention of infantile mortality. We quote the following remark.—

A scheme for the formation of a Local Society at Akyab for the Prevention of Infantile Mortality was initiated by Major Gilbert, I.M.S., and ably seconded and generously contributed to by Messrs Shwe Tha, Tha Zan, and E. K. Maricar. The services of a lady doctor were engaged for a year and were also utilized for duty at the Civil Hospital, where she now holds charge of the women's wards and treats all in-door and out-door female patients. This appointment has resulted in an appreciable increase in the number of confinement cases and in other gynaecological work. The question of permanently employing a lady doctor is under consideration.

The fine new Civil General Hospital at Rangoon in the able hands of Lieutenant-Colonel C. C. Barry, C.I.E., I.M.S., continues to do first class work.—

Rangoon General Hospital—During the year under report the quarters for the Police Surgeon and Pathologist and the Administrative Block were completed, equipped, and occupied. The "Discrimination Scheme" by which patients in the private rooms are charged for medical attendance as well as for accommodation was introduced from the 1st September, 1914. The immediate effect was to diminish the number of patients seeking admission in this department of the hospital, chiefly because the scope of the scheme was not rightly understood by the public. At the end of two months, however, patients began to come in as usual for admission.

The Dental Department was opened on the 1st February, 1914, and 1,188 patients have been treated, the average number being 108 per mensem. Though the patients treated belong to all the various races found in Rangoon, yet this department is largely attended by the Burmese community, many of whom come from the districts. When this special department for diseases of the teeth comes to be more widely known, the number of patients is likely to increase, as at present the Police and other Government employees do not attend as much as would be expected.

In the X-Ray Department 1,000 cases were treated during the year as against 880 in the previous year, while in the Electro-Therapy Department, the number of cases treated was 158 against 174 in the preceding year.

VACCINATION IN ASSAM

Usually the dullest of all annual reports are those on vaccination, but the annual report on vaccination in Assam in 1914-15 is an exception to this rule. Colonel Banatwala has submitted a report of more than usual interest, from which we must make a few extracts.

It is clear that a distinct attempt has been made to verify statistics and with startling results in some places, e.g., serious inaccuracies were found in the figures for the Garo Hills—and the large figures of previous years were found to have been "falsified by the vaccinators with the object of increasing the apparent amount of work done by them. In this year's returns the very large number of vaccination operations claimed for each of the paid vaccinators in this sparsely-populated district, as compared with those performed in other districts of the province, requires further investigation. Certain of these vaccinators were dismissed and the Sub-Inspector at fault was reduced to a lower grade."

The Civil Surgeon, Cachar, says that the decrease of 3,396 operations as compared with the number reported to have been performed in the previous year was due to stricter scrutiny of the returns and to diminished activity of the vaccinators. In this district two vaccinators were dismissed for falsifying their registers. The decrease of 8,784 operations in the Sylhet district is reported to be due to non-entertainment of vaccinators in the off-season, as there was no small-pox outbreak during the year under report.

I am not satisfied with this explanation, and I consider that the diminution in the number of operations performed is largely due to the slackness of the Vaccination Inspecting Staff, as from the tour diaries of the Inspector and Sub-Inspectors in this district it appears that with the exception of one Sub-Inspector they spent more time at headquarters than on tour. A decrease of 1,941 operations in the district of Naga Hills has not been explained by the Civil Surgeon. The matter will be enquired into. I wish to place on record my appreciation of the vaccination work done in the district of Nowgong under the supervision of the Civil Surgeon, Lieutenant Charles Bancroft, I.S.M.D. During the last three years there has been a noticeable increase in the number of successful vaccinations performed, viz., from 6,602 in 1912-13 to 12,494 in 1914-15, an increase in the number of operations inspected, viz., from 2,521 to 8,680, and a diminution in the amount of travelling allowance drawn from Rs 380-9 to Rs 311-9-6 within the same period. This gratifying record has been achieved by the close personal attention and careful supervision of the Civil Surgeon.

Total number of operations—The total number of operations performed during the year by all agencies was 320,016, of which 280,292 were primary operations and 39,724 were re-vaccinations, as compared with 336,649 in 1913-14, of which 301,241 were primary operations and 35,408 were re-vaccinations, showing a decrease of 16,633 operations. The decrease in the number of primary operations is regrettable. Possibly some part of it is more apparent than real and is due to the efforts which are being made to obtain more accurate returns from vaccinators, but a certain amount of it must be accepted as real and may be partly due to the relaxation in supervision caused by the withdrawal of the permanent Civil Surgeons for military duty and partly to the lack of attention which the work receives from many Civil Surgeons.

The total performed by the different agencies at work is made up of the following items—

- 297,647 by departmental vaccinators,
- 2,209 by the staff of dispensaries,
- 18,944 by tea-garden agencies,
- 1,041 by jail agencies, and
- 175 by railway Medical Officers

The responsibility for permitting this slackness lies primarily with the Civil Surgeons concerned. Until the Vaccination Inspecting Staff is made to do the work for which it is employed, viz., the inspection of vaccination and verification of the accuracy of the returns, energetic and honest work cannot be expected from the vaccinators. A case in which an Inspector of Vaccination failed to comply with the order limiting his stay at headquarters, after his duty in this respect had been pointed out by the Deputy Sanitary Commissioner, has received suitable punishment, and disciplinary action is being taken to deal with other officers, the amount of whose touring has been conspicuously deficient. Civil Surgeons will be reminded of their responsibility for seeing that the limitation of the stay at headquarters of the Vaccination Inspecting Staff to seven days per month during the vaccination season is strictly observed and, in future monthly returns will be exacted from all districts showing the number of days spent on tour by each of the Vaccination Inspecting Staff. To prevent this abuse and also the practice of doing a number of long daily tours to and from headquarters, I propose to alter the order, so as to permit of only seven nights being spent at headquarters during the month.

Vaccine Depot—During the year under report only 517,447 capillary tubes were loaded, against 1,875,886 of the previous year, and 446,667 tubes were issued to Assam districts, 111,910 to Eastern Bengal districts,

and 100 to Bombay. This decrease is due to the discontinuance of the supply of lymph to the Eastern Bengal districts from the 1st September, 1914, as, since the reconstitution of the province in 1912, this depot had been supplying lymph to these districts. Three hundred and ninety-four calves were inoculated during the year, and the average cost of manufacturing lymph during the year was 101 pies per tube, excluding the cost of 1,800,000 capillary tubes which were purchased during the year. Of these only 55,000 were used and the balance will last for about another two years. Including the price of tubes purchased, the average cost was 564 pies per tube.

Major L. B. Scott, I.M.S., was in charge of the depot throughout the year.

* * * * *

In conclusion, I wish to urge the *prime necessity* of greater attention being paid to the details of district vaccination by Civil Surgeons if any substantial improvement in the defects noted in this report is to be attained. The comments I have made in this report show the details to which attention is required.

During the year, circulars have been issued calling attention to the need for greater care in inspection and for verification of the accuracy of entries in vaccinators' registers. The practice of inspecting the arms of a number of vaccinated children and recording this number as vaccination operations inspected, is of no value to the department, as however badly vaccination is being performed, and however inaccurate may be the returns, a certain number of children can always be produced to satisfy an inspecting officer who works on this system, which is, I regret to say, only too prevalent. In some districts, returns are being falsified for want of this supervision.

Sufficient control is not exercised over the work of the Inspectors and Sub-Inspectors, the claims of the Civil Surgeon's office are being permitted to overrule those of the inspection of vaccination and a sufficient number of case inspections is not in all cases exacted from them.

It will be seen that reform is needed, but whether it will be possible for the Civil Surgeon to pay this necessary close supervision in addition to his multifarious duties is another matter. Is the Civil Surgeon a mere touring officer or is he an officer of the district headquarters? Up to now he has to perform in both capacities and the marvel is that he does it so wonderfully well.

BOMBAY ASYLUMS

The Three-year (1912-14) Report was submitted by Surgeon-General R. W. S. Lyons. During this period the new Central Asylum at Yeravda was opened and the obsolete asylums at Colaba and at Poona were closed. The new Asylum is a vast advance but it will not be complete till many things are added, *eg*, rooms for leper insanes, a new criminal section, more padded rooms, more bath houses, a laboratory, and more quarters for the staff.

Old Asylums still remain open at Ratnagiri, Dharwar, Ahmedabad, and at Hyderabad.

TOTAL POPULATION.

Asylums during the year 1914 was 1,575 against 1,450 in 1913 and 1,458 in 1912. The mean population for the triennium averaged 1,197 males and 297 females.

an increase of 107 males and 27 females (9.8 per cent and 10.0 per cent respectively) over the previous triennium 1909-1911. The average increase was shared mainly by the Ratnagiri, Dhawar, Ahmedabad, and Hyderabad Asylums. There was a decrease of about 15 per cent in the mean population of the Naupada Asylum due to the admission of many insanes to the new Central Asylum at Yeravda, who would, under previous arrangements, have been admitted to the Naupada Asylum. The mean European population rose from 51 in 1909-1911 to 59 in 1912-1914—an increase of 15.6 per cent.

DAILY AVERAGE STRENGTH

The daily average strength in 1914 was 1,112.3 as compared with 1,105.3 in 1913 and 1,048.9 in 1912. The mean daily average strength for the years 1912-1914 was 1,088.8 against 998.2 for 1909-1911.

As remarked by my predecessor in the previous Triennial Report (1909-1911) the steady increase in the

number of patients in the asylums is partly due to the growing popularity of the institutions and partly to social and economic considerations which render them neighbours less tolerant of annoyance by insanes and their relatives less able to maintain them.

MORTALITY

The number of deaths fell from 160 in 1912 to 106 in 1913 and 92 in 1914, the average mortality for the triennium being 119 against 115 for the three years 1909-1911. The ratio per cent of deaths to the daily average strength was 8.3 as compared with 9.6 in 1913 and 15.3 in 1914. The mean death-rate to the daily average strength during the years 1912-1914 was 10.1 against 11.5 in 1909-1911.

TYPES OF INSANITY

The various types of insanity treated during the three years 1912-1914 as compared with the mean of the preceding three years 1909-1911, and the results attained are summarized in the subjoined table—

| | TOTAL TREATED | | | | | RECOVERED | | | | | IMPROVED | | | | | NOT IMPROVED | | | | | DIED | | | | |
|---------------------------------|---------------|------|------|-----------------|-----------------|-----------|------|------|-----------------|-----------------|----------|------|------|-----------------|-----------------|--------------|------|------|-----------------|-----------------|------|------|------|-----------------|-----------------|
| | 1914 | 1913 | 1912 | Mean of 1912-14 | Mean of 1909-11 | 1914 | 1913 | 1912 | Mean of 1912-14 | Mean of 1909-11 | 1914 | 1913 | 1912 | Mean of 1912-14 | Mean of 1909-11 | 1914 | 1913 | 1912 | Mean of 1912-14 | Mean of 1909-11 | 1914 | 1913 | 1912 | Mean of 1912-14 | Mean of 1909-11 |
| Idiocy | 69 | 73 | 68 | 70 | 66 | 1 | 1 | | | 1 | 4 | 1 | 1 | 2 | 1 | 3 | 1 | 2 | 2 | 1 | 2 | 9 | 8 | 6 | 6 |
| Mania | 791 | 741 | 710 | 747 | 689 | 112 | 94 | 69 | 91 | 83 | 40 | 37 | 37 | 38 | 42 | 9 | 12 | 13 | 11 | 13 | 39 | 53 | 61 | 51 | 57 |
| Melancholia | 283 | 336 | 305 | 338 | 383 | 17 | 21 | 37 | 25 | 35 | 7 | 17 | 20 | 15 | 22 | 8 | 11 | 12 | 10 | 9 | 16 | 23 | 55 | 31 | 33 |
| Circular insanity | 3 | 2 | | 2 | | 1 | 1 | | | | | | | | | | | | | | | | | | |
| Mental stupor | 16 | 10 | 5 | 10 | 6 | 5 | | | 2 | 1 | 2 | | | | 1 | | | 1 | | | 2 | 1 | | 1 | |
| Delusional insanity | 86 | 104 | 95 | 95 | 73 | 17 | 5 | 10 | 11 | 8 | 10 | 12 | 6 | 9 | 6 | 4 | | 1 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |
| Confusional insanity | 15 | 5 | | 7 | | 7 | 3 | | 3 | | 2 | 1 | | 1 | | 2 | | | | | | | | | |
| * Insanity of Haschisch | 42 | 39 | 49 | 43 | | 12 | 4 | 8 | 8 | | 3 | 2 | 7 | 4 | | | 1 | | | | 2 | 7 | 9 | 6 | |
| Dementia | 237 | 128 | 134 | 166 | 137 | 12 | 3 | 4 | 6 | 2 | 3 | 4 | 3 | 3 | 4 | 3 | 2 | 2 | 2 | | 17 | 8 | 22 | 16 | 15 |
| Declared to have recovered, etc | 27 | 11 | | 13 | 4 | 20 | 5 | | 8 | | | 1 | | | | | | | | 2 | | | | | |
| Impulsive insanity | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Alcoholic insanity | 5 | | | 2 | | | | | | | | | | | | | | | | | | | | | |
| General paralysis | | 1 | 2 | 1 | 2 | | | | | | | | | | | | | 1 | | | | | | | |

* Cases of insanity due to all forms of Indian Hemp are included under this head.

Correspondence.

TETANUS AND THE USE OF QUININE HYPODERMICALLY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I would advise Colonel H. Smith to read the article on this subject by F. A. Smith in your Journal of September 1911, and your review in the volume for November of the same year, and so to give his reason another chance.

Colonel Semple in his *Scientific Memoir* (No. 43), demonstrated that exposure to cold so lowered guinea pig's vitality that washed germs caused tetanus. He also injected semi-lethal doses of quinine into others, thereby surely equally reducing their vitality. But further these injections always caused sloughy wounds, out through the skin, he says. To show that when these guinea pigs got tetanus on washed bacilli being injected as well, it was due to the specific effects of quinine, he also injected washed bacilli into other guinea pigs, whose vitality had not been depressed and who had no sloughy wounds.

There was surely no need of laboratory experiments to

convince any one that a person with a sloughy wound was more liable to get tetanus than one who had none, especially if he grovels on the ground with it, like a guinea pig, and also that the danger would be increased, if you injected washed tetanus bacilli into him. This is all evident and long recognised by every one, but Semple has proved nothing else. Our clinical experience here proves that it is possible to inject an effective dose of quinine into a muscle thousands of times, without any induration or pain on movement, much less any sloughing, and without getting tetanus.

If we wished to inject washed tetanus bacilli into him as well, no doubt a dose of antitoxine would be advisable, but we avoid doing that by ordinary care.

F. A. Smith also in the September number of the Gazette for 1911 states that his clinical experience is the same.

Semple also raises bogies of tetanus germs and spores lying dormant in the body for years, and, quite unjustifiably, argues that, because he finds tetanus bacilli in the motions of four out of ten of the frequenters of his laboratory, this is therefore the case with people in general.

If this were so, many cases of strangulated hernia should get tetanus. The strangulated bowel is rendered anabolic and its vitality is lowered. The tetanus germs therein should have an excellent chance of infecting the patient, yet such an event is a clinical rarity.

The stump in a radical cure of hernia is certainly at first cut off from the blood supply, but if tetanus germs are not placed in it during the operation, how do they reach it? It is soon infiltrated with serum and leucocytes from the surrounding vessels, but this serum is oxygenated, and the stump is then no longer anaerobic.

Lastly Semple in the *I M G* for December 1911 says that he does not think the doses given by F A Smith would carry the risk of tetanus.

His opinion, however, as a laboratory worker, that such doses would have no beneficial effect, is of course absolutely valueless. F A Smith and I can prove by clinical experience that they have.

Thus a demonstration that the injection of washed tetanus germs into devitalized guinea pigs with sloughy wounds causes tetanus has no bearing whatever on the injection of doses of quinine into patients who have no sloughy wounds and into whom washed tetanus bacilli are not injected at the same time.

Yours, etc,

VIVIAN B BENNETT,

LIEUT COL, I M S

Hyderabad, Sind

[We invite opinions. Our own feeling is that Sir D Semple pointed out great dangers, but nevertheless hypodermics of quinine have been given thousands of times without ill effect, but there are other and safer ways of administering quinine.—Ed, *I M G*]

SALINE INJECTION IN CHOLERA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I request the favour of your kindly giving place to the following in your esteemed paper—

In an epidemic of cholera in this town I have been trying intravenous injection of hypertonic salt solution combined with permanganates internally with a fair amount of success. In some cases there were certain phenomena which I am unable to explain and I hope some of your kind readers might favour me with their opinion and advice.

One night I was called in to see a girl aged about 11. She was in extreme collapse after only two hours' illness. Body was bathed with very cold perspiration, and there was absolutely no pulse at the wrist. I immediately began intra-venous injection of hypertonic saline choosing the internal saphenous vein. The pulse became perceptible after about a pint of fluid had gone in, but as the tension was very low, I continued the injection but to my surprise the pulse became imperceptible again although the injection was being continued. After about 1½ pints had run in no more fluid would go. There was no question of the cannula being blocked or its not being in the vein for I satisfied myself on that score. I then tried the vein of the opposite leg but in that too after about 4 oz had gone in no more would go. I was thus not plussed and had to give it up. After injection, although pulse was imperceptible at the wrist, heart was beating forcibly but in gallop rhythm. This case proved fatal four hours after the injection. I wish to be enlightened on the following points—

- (1) Why did the pulse fail after it had become perceptible at the wrist?
- (2) Why did it not improve although the injection was being continued?
- (3) How was it that no more fluid would run in after about 1½ pints had gone?
- (4) What should be done in cases where pulse after first showing signs of improvement becomes bad again? Injection of even 5 or 6 pints does not seem to improve it, and if more fluid is injected the breathing gets quick and shallow and there are signs of distress.
- (5) How soon after the first injection can a second injection be given if pulse fails soon after the first? Could it be given when the patient has a temperature of 103° F as a result of reaction after the first injection and is pulseless and restless? I tried it in one instance in the same vein but no fluid would go in, probably on account of thrombosis in the vein.
- (6) Some patients get severe rigor immediately after injection and during it, whereas others do not, although the temperature of the fluid used is the same.
- (7) For how many days ought the permanganates to be continued? I have known that after about two days patients complain of severe pain in the stomach and cannot retain the tablets. They are either vomited or passed (in one case) in the motions entire.
- (8) Can potassium permanganate be safely administered to pregnant women? Two women aborted, was the abortion due to cholera or permanganates?

Yours, etc,

BHAGWAN DAS,

I M S,

Chief Medical Officer, Rajnandgaon

RAJNANDGAON,
28th August, 1915

NINE STONES IN A URINARY BLADDER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following may perhaps be of some interest to your readers—

A Muhammadan male, age about 70 years old, attended the dispensary on 21st July, 1915, with pain in the hypogastric region and gland, penis painful and frequent micturition, urine coming in drops, and pus in the urine. These complaints he had since last three years in more or less degree. I sounded him but could not detect any stone, but there was much hypertrophy of the prostate. On the following morning when I was washing the bladder with quinine lotion, all of a sudden I felt the click just as one always feels when sounding the stones. This now I did several times and consequently I told the man that he had stone in his bladder, and unless he got rid of it his trouble would remain. As the man was in great trouble, and he had full confidence in me, he would not like to undergo operation anywhere else, and I unfortunately was short of Litholapaxy instruments, so I did Lateral Lithotomy and I was much surprised to remove nine stones from his bladder of the phosphatic variety with the following weights: grs 210, 140, 110, 135, 120, 110, 110, 80, 60, respectively. The operation was performed on 24th July 1915 morning. The man, though very old and weak in health, made an uneventful recovery and was discharged cured on 19th August 1915.

The case and stones were shown to the Civil Surgeon of the district, who by chance was here on his inspection on 25th July 1915. He was very glad to see the case, and was kind enough to make a remark about the case in his inspection book.

It would be not out of place to mention that the man says that he, during the course of three years of his illness, was several times examined and sounded at different hospitals, but none told him of the presence of any stone in his bladder. Some diagnosed as Cystitis and some Hypertrophy of the Prostate.

I shall be much thankful to you for the trouble and favour that you would do to me by giving space to this article in your widely circulated paper.

Yours, etc,

GOKAL CHAND,

S A S,

Kahrur, Mullan District

20th August, 1915

RUPTURE OF NORMAL SIZE SPLEEN, BY VIOLENCE, WITHOUT FRACTURE OF RIBS OR EXTERNAL WOUND

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The case given below may interest your readers—

A railway loader, healthy young man, aged about 25 slipped his foot while unloading a truck containing rails, on the 22nd May last. The heavy rail he was unloading with the help of others fell on him, striking against the left side of the abdomen and the right thigh. He was picked up unconscious and sent at once to the Civil Hospital, where, on arrival, he was found dead. At the autopsy no external wound was found. There was a small bruise, about 1" x ½" on the left flank, and another about 3" x ½" lower down the abdomen, a little above the left groin. In addition to these there were two bruises on the anterior aspect of the right thigh. Extravasation of blood was found in the muscles under the bruises. On opening the abdomen a large quantity of blood (about 5 lbs) was found in the peritoneal cavity. The spleen, which occupied the normal space, presented a large irregular shaped rent on the external border extending to the posterior surface. It weighed 5 ozs. None of the other viscera presented any mark of injury. All of them looked healthy except that they presented an anæmic appearance. None of the ribs was found fractured.

BROACH,

3rd June, 1915

Yours, etc,

D E KOTHAWALA,

Civil Surgeon, Broach

THERAPEUTIC NOTICES

"LUBAFAX" SURGICAL LUBRICANT

BURROUGHS WELLCOME & Co have introduced a preparation, with the title "Lubafax" Surgical Lubricant, which can be relied upon to answer the requirements of urologists, gynecologists, accoucheurs, and medical practitioners generally. For catheters, colon and rectal tubes, specula, sounds, rectal and vaginal nozzles, and in obstetric operations, this preparation will be found a most serviceable antiseptic lubricant. It is suited also to the requirements of aural and nasal surgeons.

"Lubafix" Surgical Lubricant is without injurious effect upon either instruments or their rubber attachments, and will be found non greasy and non irritating as an application to the hands.

It is a bland jelly readily soluble in water and is put up in collapsible tubes which are most convenient and clearly in use. The tubes are enamelled and the printed matter on them is incapable of being transferred to the hands.

MESSRS BUTTERWORTH & CO (INDIA), LD, 6, *Hastings Street, Calcutta*, publish a most useful list of new Medical and Surgical Books which will be sent to any medical man asking for it.

THE Oxford University Press has issued an interesting pamphlet giving details of the numerous Medical Books under the Leading Oxford Medical Publications. Their agency is at Hornby Road, Bombay.

Service Notes.

DURING the fourteen days 29th July to 11th August inclusive, the number of casualties among officers amounted to 549, of which 132 occurred in the Dardanelles, 375 in Flanders, and 42 in other seats of war. No less than 143 casualties in Flanders were published on one day, 9th August. These appear to have taken place in the capture of some trenches at Hooze, near Ypres, by the Germans using liquid fire. The trenches have since been retaken. The casualties may be tabulated as follows—

| | Killed | Died | Wounded | Missing | Prisoners | TOTAL |
|---------------------------|--------|------|---------|---------|-----------|-------|
| <i>Dardanelles</i> | | | | | | |
| Naval | 4 | 2 | 12 | 3 | — | 21 |
| Army | 24 | — | 41 | — | — | 65 |
| Australians | 14 | — | 23 | — | — | 37 |
| British officers, Indians | 3 | — | 1 | — | — | 4 |
| Indian officers | 2 | — | 3 | — | — | 5 |
| <i>Flanders</i> | | | | | | |
| Army | 112 | — | 228 | 13 | 3 | 356 |
| Canadians | 1 | — | 2 | — | 1 | 4 |
| British officers, Indians | 2 | 1 | 5 | 1 | — | 9 |
| Indian officers | — | — | 6 | — | — | 6 |
| <i>Persian Gulf</i> | | | | | | |
| British officers | 6 | — | 21 | — | — | 27 |
| Indian officers | 2 | — | 5 | — | — | 7 |
| <i>East Africa</i> | | | | | | |
| British officers | — | — | 2 | — | — | 2 |
| Indian officers | 1 | — | — | — | — | 1 |
| Aden | 2 | — | 1 | — | — | 3 |
| South Africa | — | — | 2 | — | — | 2 |
| TOTAL | 173 | 3 | 352 | 17 | 4 | 549 |

Among these 549 casualties, thirteen were medical officers—four killed and nine wounded. In Flanders temporary Lieutenants J C Hawkes and G McCallum were killed, C D Roberts, J S Stewart and H J Burke, wounded, all of the R A M C. In the Dardanelles temporary Lieutenant J Cattanach, R A M C, and Major S J Richards, Australian Army Medical Corps, were killed, Major T Holt and Captain J Lithgow, R A M C (T F), Staff Surgeon E B Kenny and Surgeon H K Shaw, R N, and temporary Lieutenant J N Clark, R A M C, were wounded. The thirteenth was Captain P B Bharrucha, I M S, wounded in the Persian Gulf.

Captain Phoozshah Byramji Bharrucha, I M S, wounded in Turkish Arabia, was born on 21st February, 1886, educated at the Grant Medical College, Bombay, and at King's College, London, and took the M B London in 1908, the M D in 1912, the M R C S and L R C P London in 1909, and the F R C S England in 1911. He entered the I M S as Lieutenant on 30th July, 1910, and became Captain on 30th July, 1913. The *Army List* shows him as serving with the 45th Rattay's Sikhs.

Lieutenant J S Stewart, R A M C, attached 10th battalion, Durham Light Infantry, is reported as wounded in the Dardanelles, in the casualty list of 4th August. There are two temporary Lieutenants of this name in the *Army List*. James Smith Stewart, M B and Ch B, Aberdeen, 1913, and John Symington Stewart, M B and Ch B, Glasgow, 1914. Their commissions date from 10th August and 5th October, 1914, respectively.

Staff Surgeon Edward Bryan Kenny, R N, Naval Field Ambulance, was wounded in the Dardanelles on 29th July. He took the M B, Ch B and B A O of the Royal University, Ireland, in 1903, entered the Navy in the same year, and became Staff Surgeon on 23rd November, 1911.

Surgeon Hugh Kirkland Shaw, R N, Naval Field Ambulance, reported on 6th August as wounded in the Dardanelles, took the M B and Ch B at Edinburgh in 1914, and received a temporary commission as Surgeon in the Navy on 3rd November 1914.

Lieutenant John Cattanach, R A M C, who was reported as wounded in the Dardanelles in the casualty published on 29th July, has since died of his wounds. He was the son of William Cattanach, of Newtonmore, and was educated at Edinburgh, where he took the M B and Ch B in 1912. He took a temporary commission as Lieutenant in the R A M C on 10th October, 1914. He was a noted athlete, the finest shinty player in Scotland, represented Edinburgh in the Inter University sports in 1909, 1910, and 1911, and gained Scottish international cups both for hockey and for athletics.

Lieutenant Henry James Burke, R A M C, wounded in Flanders, took the L R C P I and L R C S I in 1913, and got a temporary commission as Lieutenant on 12th August, 1914.

Lieutenant George McCallum, R A M C, reported in the casualty list published on 8th August as killed in Flanders, was educated at Glasgow, where he took the M B and Ch B in 1914. He got a temporary commission as Lieutenant, R A M C, on 25th January, 1915, and was attached to the 6th battalion, Duke of Cornwall's Light Infantry, when killed.

Lieutenant John Carnock Hawkes, R A M C, reported in the casualty list of 8th August as killed in Flanders, took the Scottish triple qualification in 1910, and got his commission as a temporary Lieutenant in the R A M C, from 16th December, 1914. He was attached to the 8th battalion, King's Royal Rifle Corps. The *Medical Directory* gives his address as Castletown, Berehaven, County Cork.

Major T Holt and Captain J Lithgow, both R A M C (T F), were both reported as wounded in the Dardanelles in the casualty list published on 9th August. Both had previously been reported as wounded, Major Holt on 15th June and Captain Lithgow on 24th July, and their services have been noted before.

Major S J Richards, first Australian Clearing Hospital, was reported on 11th August to have died of wounds received in the Dardanelles.

Lieutenant John Nichol Clark, R A M C, was reported on 11th August as wounded in the Dardanelles. He took the Scottish triple qualification in 1913, got a temporary commission as Lieutenant on 7th October, 1914, and was attached to the 6th battalion of the Lincolnshire regiment.

A SPECIAL supplement to the *London Gazette* issued on 5th August, contains a despatch, dated 12th June, from General Sir Ian Hamilton, commanding the Mediterranean expeditionary force, in which a large number of officers and men are mentioned for good service, including the following members of the Medical Services—

R A M C—Colonel M T Yarr.

Field Ambulances—Major C H Lindsay, M D, 1st West Lancashire Field Ambulance (T F), 87th Field Ambulance, Lieutenant G Davidson, M D, 1st Highland Field Ambulance (T F), 89th Field Ambulance, 1365, Corporal J W Jones, 87th Field Ambulance, 1614 Private A Cook, 87th Field Ambulance.

Royal Naval Division, Howe battalion—Surgeon E G Schlesinger, R N.

Australian and New Zealand Forces—Captain A G Butler, D S O, Australian Army Medical Corps, attached 9th Queensland battalion, Captain E T Brennan, Australian Army Medical Corps, attached 11th West Australia battalion, Captain H L St V Welch, Australian Army Medical Corps, 1065, Sergeant H Jackson, 997, Private L W Burnett.

1st Field Ambulance—Captain C E Wassell, 611, Private G Macgregor.

2nd Field Ambulance—66, Lance Corporal V Cunley.

3rd Field Ambulance—Captain D MacWhirter, 151, Lance Corporal G C Farnham, 178, Private C H G Rosser.

1st Australian Casualty Clearing Station—Lieutenant-Colonel W W Giblin, Major J Corbin, 1403, Private M D Cowtan.

New Zealand Army Medical Corps—Lieutenant Colonel W R Pearless, V D, Captain G Craig, 3147, Lance Corporal G Steedman.

New Zealand Field Ambulance—Major E J O'Neill, Lance Corporal W Singleton, 3158, Private J Cormie, 15606, Private L Crawford Watson, 3170, Private W Heaver, 3163, Private W J Henry.

On 5th August the War Office issued a list of Warlike and Non Commissioned Officers and Privates, to whom the Distinguished Conduct Medal had been awarded for acts of gallantry and devotion to duty. The list contained 405 names, besides six who had already received the D C M, to whom clasps were now awarded. Among them were the following members of the Medical Services —

Cawley, V, Lance Corporal, No 2 Field Ambulance, 1st Australian Division

Cowan, M D, Private, 1st Australian Casualty Clearing Station

Fitch, W R, Private, R A M C, attached 1st Hampshire Regiment

McNeill, J E, Corporal, R A M C, attached 2nd Royal Inniskilling Fusiliers

Percy, J, Sergeant, R A M C

Stoner, H W, Sergeant, R A M C attached 1st Royal Irish Fusiliers

Steedman, W, Private, R A M C attached 9th Lancers

Watson, R M, acting Sergeant, 3rd Welsh Field Ambulance, R A M C (T F)

CAPTAIN JOHN CHARLES GILLMAN, of the Indian Subordinate Medical Department, died in the General Hospital, Calcutta, on July 2nd, 1915. He was born on 27th July, 1862 and entered the I S M D in 1886, rising to commissioned rank as Lieutenant on 23rd July, 1908, and becoming Captain on 23rd September, 1912. He served on the North East Frontier of India in the Sikkim Campaign of 1888, gaining the medal with clasp, as well as a special promotion to first class Assistant Surgeon. Most of his services, however, had been spent in civil employ in Bengal, where he held the posts of Medical Officer to the pilot bugs at the Sandheads, and Civil Surgeon, successively, of Singhbhum, Puri, Dinajpur, Serampur and Sambalpur, while since 1909 he had been Medical Inspector and Certifying Surgeon of Factories in Bengal. He was also Medical Officer of the Cossipur Artillery Volunteers. He qualified as L S A in 1886.

A STATEMENT issued among Parliamentary papers on 27th July, gives the number of British casualties up to July as 320,995. All casualties, in all the various theatres of war, are included, except those in German South West Africa, which were recently stated to amount to about 250 killed, and 550 wounded. The casualties in the army include all which had occurred up to 18th July, those in the Navy up to 20th July. They are classified as follows —

Army casualties among officers

| | France | Dardanelles | Other places | TOTAL |
|--------------|---------------|--------------|--------------|---------------|
| Killed | 3,288 | 567 | 145 | 4,000 |
| Wounded | 6,803 | 1,379 | 248 | 8,430 |
| Missing | 1,163 | 198 | 22 | 1,383 |
| TOTAL | 11,254 | 2,144 | 415 | 13,813 |

Army casualties among men

| | France | Dardanelles | Other places | TOTAL |
|--------------|----------------|---------------|--------------|----------------|
| Killed | 48,372 | 7,567 | 1,445 | 57,384 |
| Wounded | 156,308 | 28,635 | 3,247 | 188,190 |
| Missing | 50,969 | 10,892 | 611 | 62,502 |
| TOTAL | 255,649 | 47,094 | 5,333 | 308,076 |

Naval casualties

| | Killed | Wounded | Missing | TOTAL |
|--------------|--------------|------------|------------|--------------|
| Officers | 499 | 87 | 29 | 615 |
| Men | 7,430 | 787 | 274 | 8,491 |
| TOTAL | 7,929 | 874 | 303 | 9,106 |

Grand total of casualties

| | Killed | Wounded | Missing | TOTAL |
|--------------|---------------|----------------|---------------|----------------|
| Army | 61,384 | 196,620 | 63,895 | 321,899 |
| Navy | 7,929 | 874 | 303 | 9,106 |
| TOTAL | 69,313 | 197,494 | 64,188 | 330,995 |

Previous official announcements of the British casualties have been as follows —

| | | |
|----------------|------|---------|
| Up to August | 25th | 2,000 |
| Up to October | 31st | 57,000 |
| Up to February | 4th | 101,000 |
| Up to April | 11th | 139,347 |
| Up to May | 31st | 271,616 |

Some previous figures, from other wars, are —

Franco German War, Germans killed 28,000, wounded 101,000

Boer War, British killed 5,744, wounded 22,829, died 10,168

China, British, total 20,526, of which twelve per cent killed

American Civil War, both sides, killed and died 600,000

DURING the fourteen days, 15th to 28th July inclusive, 585 casualties among officers were reported, of which 283 occurred in Flanders, 275 in the Dardanelles, and 27 in other theatres of war. These casualties may be tabulated as follows —

| | Killed | Died | Wounded | Missing | Prisoners | TOTAL |
|---------------------------|------------|----------|------------|-----------|-----------|------------|
| Dardanelles | | | | | | |
| Naval | 16 | | 32 | 7 | | 55 |
| Army | 61 | 2 | 16 | 22 | | 101 |
| Australians | 8 | | 31 | 2 | 2 | 43 |
| New Zealanders | | 1 | 5 | | | 6 |
| British officers, Indians | 1 | | 1 | | | 2 |
| Indian officers | 2 | | 3 | | | 5 |
| Flanders | | | | | | |
| Army | 13 | | 186 | 5 | 4 | 208 |
| Canadians | 2 | | 4 | | | 6 |
| British officers, Indians | 1 | | 4 | 1 | | 6 |
| Indian officers | 1 | 1 | 1 | | | 3 |
| East Africa | | | | | | |
| British officers | 1 | | 2 | | 1 | 4 |
| Indian officers | | | 2 | | | 2 |
| Aden | 1 | | | | | 1 |
| Camerons | 1 | | | | | 1 |
| East Africa | | | 1 | | | 1 |
| Persian Gulf | | | | | | |
| British officers | 10 | | 3 | 1 | | 14 |
| Indian officers | 2 | | 2 | | | 4 |
| TOTAL | 183 | 4 | 253 | 38 | 7 | 585 |

THE casualties in the Dardanelles have been chiefly in Scottish Territorial battalions, the 4th and 5th K O S B, the 4th Royal Scots Fusiliers, the 6th H L I, and the 5th A and S Highlanders. One of the officers shown as wounded in Flanders was poisoned by gas. The fortnight's list includes five Medical Officers, all in the Dardanelles.

LIEUTENANT COLONEL PETER MURRAY KERR, commanding the 15th battalion of the King's Own Scottish Borderers, was invalided from the Dardanelles in July for dysentery. Lieutenant Colonel Kerr, who took the M B and C M at Edinburgh in 1887, is, in civil life, Surgeon to the Dumfries and Galloway Infirmary at Dumfries, where he is in practice. Two other medical men are serving as combatant officers in this battalion, Captain E S Forde, of Castle Douglas, and Captain J J Dykes (killed), of Dumfries. This battalion, like three other Scottish Territorial battalions, the 4th Royal Scots, and the 7th and 8th Cameronians, suffered very heavy losses in the fighting in the first half of July, in the Gallipoli Peninsula.

Captain James Johnstone Dykes, 15th battalion, King's Own Scottish Borderers, was reported, in the casualty list of 20th July, as killed in the Dardanelles. He took the L D S of the Edinburgh College of Surgeons in 1907, and the Scottish triple qualification in 1911. Before the war, he was Honorary Dental Surgeon to the Dumfries and Galloway Infirmary, and to the Dumfries and Maxwell town Industrial Schools and Girls' Homes. He entered the Territorial Force in 1906, and became Captain on 2nd June, 1913.

Lieutenant Oliver Henry Blacklay, R A M C (T F), wounded in the Dardanelles, took the M B and Ch B at Edinburgh in 1910, the M D in 1913. He joined the third East Lancashire Field Ambulance (headquarters Manchester), as Lieutenant, on 1st September, 1914.

Captain Albert John McClure Chesney Morrison R A M C, wounded in the Dardanelles, took the M B and Ch B at Edinburgh in 1913 and subsequently acted as Resident Surgeon of Whitehaven Infirmary. He took a temporary commission as Lieutenant in the R A M C on 21st October, 1914, and was promoted to Captain under the recent orders of July 1915, by which all Lieutenants of the R A M C, Territorial Forces and temporary rank, are to be promoted to Captain on completion of six months' active service. This is the second time that Captain Morrison has been reported as wounded, his name having appeared first in the casualty list of 29th June, and again in that of 22nd July.

CAPTAIN MICHAEL FOSTER RIANBY, Indian Medical Service, was killed in action in the Dardanelles on 2nd July. He was born on 14th April, 1878, educated at the London Hospital, and took the M R C S and L R C P London, in 1900, the M B London in 1901, and the M D in 1914. In 1904 he gained the Carmichael prize for an essay on *The Medical Profession*. After filling the posts of house physician, and of clinical assistant for medical outpatients, and in the skin and aural departments, at the London Hospital, he entered the I M S as Lieutenant on 1st February, 1905. At the Royal Army Medical College he gained the Montefiore medal and prize in Military Surgery. On 1st February, 1908, he was promoted to Captain. Previous to the war, he was in civil employ in the Central Provinces, but was recalled to military duty, and on 16th October, 1914, was posted to the 5th Gurkhas, with which regiment he was serving when he was killed.

Major David Robert Taylor, R A M C (T F), was killed in action in the Dardanelles on 14th July. He was educated at Edinburgh University, and at the school of the Royal College of Surgeons in that city, and took the Scottish triple qualification in 1893. He then settled in practice at Ayrton, in Berwickshire, where he was Medical Officer to the post office, also visiting physician to the Milleson hospital for infectious diseases. He was for five years an officer in the second volunteer battalion of the K O S B, and on 8th August, 1906, became Lieutenant and Medical Officer in the 4th (Territorial) battalion of the K O S B, becoming Captain on 1st April, 1908, and Major on 14th December, 1914.

Lieutenant Charles Stewart Black, 6th battalion, Highland Light Infantry, wounded in the Dardanelles, was educated at Glasgow University, where he took the M B and Ch B in 1910. He had filled the posts of Assistant Medical Officer of Stophill hospital, Glasgow, and of assistant physician to the Royal Glasgow asylum. He also served on the medical staff of the hospital sent out to Serbia by the Scottish Red Cross in the Balkan War of 1912, when he received the Serbian Order of St Sava. He joined the 6th (City of Glasgow) Territorial battalion of the H L I, as second Lieutenant on 10th September 1914.

Captain John D Lithgow, R A M C, wounded in Dardanelles, was educated at the University and at Anderson's College, Glasgow, where he was Forest Bursar, and took the M B and Ch B in 1890, the M D in 1898. After qualifying he went into practice at Cleland, in Lanarkshire, where he was certifying Factory Surgeon. He joined the R A M C, as a temporary Lieutenant on 15th October, 1914, becoming Captain on 15th April, 1915. He was attached to the 6th battalion, H L I, when wounded.

Captain Andrew Wallace, of the (Border) 4th Territorial battalion of the K O S B, was killed in action in the Dardanelles on 12th July. He was the eldest son of Mr James Wallace, head master of Prestonpans School, and was educated at George Heriot's School, and at the University of Edinburgh, where he took the M B and Ch B in 1896. After serving for some time as an assistant in Leicestershire, he joined the Glen line of steamers to China as a Medical Officer, and was Surgeon of the *Glen Avon* when she was wrecked off Hongkong. He settled in practice at Coldstream in Berwickshire about fifteen years ago, and joined the 4th battalion of the K O S B about twelve years ago, becoming Captain on 11th April, 1906.

The 4th (Border) and 5th (Dumfries and Galloway) Territorial battalions of the K O S B have lost the following medical men, in the fighting in the Dardanelles in July.

Lt Colonel P M Keir, commanding 5th battalion, invalided.

Major D R Taylor, Medical Officer, 4th battalion, killed.

Captain J J Dykes (combatant), 5th battalion, killed.
Captain A Wallace (combatant), 4th battalion, killed.
2nd Lieut A H M Henderson (medical student), 4th battalion, killed.

THE supplement to the *London Gazette* of 24th July, 1915, records the grant of a number of decorations to officers and men, four Victoria Crosses, twelve D S O's, and 33 Military Crosses. Among the recipients of the latter are two temporary Lieutenants in the R A M C.

Lieutenant William Kelsey Fry, R A M C. For conspicuous gallantry and devotion to duty at Festubert, between May 16th and 18th, 1915, while carrying out his work under heavy fire. He was himself wounded while attending to others.

Lieutenant David James Sheives Stephen, M D, R A M C. For conspicuous gallantry and devotion to duty in attending to the wounded under heavy shell fire on several occasions, notably on the night of April 23rd, and on May 8th, 1915. "He has usually performed his gallant work single handed, and by his cheerfulness and pluck has encouraged all around him."

The Cross of the Legion of Honour has been awarded to Lieutenant Oswald Robert Kelly, Medical Officer of the Red Cross serving in France.

COLONEL WILLIAM GEORGE HUMPHREY HENDERSON, Bombay Medical Service, retired, died at Kensington on 15th July 1915 aged 61. He was the eldest son of the late General Hume Henderson, born on 16th May, 1851, was educated in the school of the Royal College of Surgeons, Ireland, and took the L R C S I and the L K Q C P in 1875, also subsequently the F R C S I in 1889, entering the I M S as Surgeon on 31st March, 1876. He became Surgeon Major on 31st March 1888, Surgeon Lt Colonel on 31st March, 1896, and Colonel on 11th November, 1905, retiring on 14th November, 1908. He served in the third Burmese war in 1857-93, and received the medal for that campaign.

THE Indian Hospitals at Brighton were inspected by General Sir Edmund Barrow, Military Secretary, India Office, on the 17th and 18th July, and by Field Marshal Lord Kitchener of Khartoum, Secretary of State for War, on 20th July. Sir Haicourt Butler, Lieutenant Governor designate of Burma, also visited them on 24th July.

THE Distinguished Conduct Medal has been granted by the King to 3rd Asst Surgeon K P Elloy of No 7 British Field Ambulance for conspicuous gallantry and devotion to duty near Ypres, during operations 24th April to 4th May, 1915, in collecting and treating wounded under heavy fire, and especially at St Jern on 29th April, when, on the advanced dressing station being destroyed by shell fire, he helped to remove the wounded to a place of safety, displaying great coolness and resource.

THE Editor of the *Dublin Journal of Medical Science* (July, 1915) has the following personal note—

"With keen regret we chronicle the death, in peaceful sleep on Friday, June 4th, of our veteran colleague and friend, Christopher Joynt, M D, Q U I F R C P I. Dr Joynt was a retired member of the Indian Medical Service, in which he spent some thirty years of his life, and from which he retired with the well deserved rank of Deputy Surgeon General. Since the year 1887, Dr Joynt kept a daily record of the weather, and his very accurate rainfall observations have appeared month by month in this Journal during many years. He enjoyed unbroken good health throughout his long life, and just 'fell asleep,' aged eighty seven years, esteemed and regretted by all who knew him."

MAJOR R KELSALL, I M S, 112th Indian Field Ambulance, is reported slightly wounded in France.

THE MESOPOTAMIA OPERATIONS

THE following extracts on the good work of the Medical Department are taken from the despatches published in the *Gazette of India*, August 14th, 1915. Indian Expeditionary Force 'D,' Basia dated 6th May.—General Sir John E. Nixon mentioned the following Medical Officers—

Colonel P. Behar, Indian Medical Service, Acting Deputy Director of Medical Services, materially assisted the operations by the ability and untiring energy which he displayed in the working of the important department over which he at the time was presiding.

Major H. A. Bransbury, Royal Army Medical Corps, commanded the sections of No 19 Combined Clearing Hospital that carried out the evacuation of the wounded after Shaiba—attended himself to all cases (over 1,100 wounded, including those of the enemy) as they arrived, displaying much initiative and resource.

4th Class Assistant Surgeon H. N. Murphy, Indian Subordinate Medical Department, was attached to No 19 Combined Clearing Hospital during the evacuation of wounded from Shaiba—worked with untiring energy and marked intelligence, proving himself to be very capable and reliable.

Others of the Medical Service I consider worthy of commendation are—

Lieutenant Colonel H. M. Adamson, Royal Army Medical Corps—(Commanding No 3 A, British General Hospital up to 21st April).

Lieutenant-Colonel G. B. Irvine, Indian Medical Service—(Commanding No 9, Indian General Hospital).

Lieutenant Colonel D. J. Collins, Royal Army Medical Corps—(Commanding No 3 A, British General Hospital, after 21st April).

Lieutenant-Colonel F. J. Palmer, Royal Army Medical Corps—(Surgical Specialist, No 3 A, British General Hospital).

Major H. R. Brown, Indian Medical Service—(Commanding No 19 Combined Clearing Hospital).

Captain O. C. Shaw, Indian Medical Service—(No 19 combined Clearing Hospital).

Captain G. F. Graham, Indian Medical Service—(Medical Officer, 20th Duke of Cambridge's Own Infantry (Brownlow's Punjabis)).

1st Class Assistant Surgeon W H Brown, Indian Subordinate Medical Department —(In charge of Depot of Medical Stores)

In the report of the operations at Shaiba on 11th and 12th April, Major Genl Fry writes —

Medical —I cannot speak too highly of the behaviour of the Medical Department in all its ranks. There was no flinching during the bombardment and perfect steadiness, and their work was done in a most efficient manner under the able direction of Lieutenant Colonel J Hennessey, R A M C. As I have already noted during this campaign, the Army Bearer Corps and Hospital Corps behaved excellently. I would particularly bring to notice the good work done by —

Major T G Foster, R A M C, and Captain R E Wright, I M S, No 3 Field Ambulance, who were working in the Fort Section of the defence and most exposed to fire.

The G O C, in his report to the Major General, General Staff, Indian Expeditionary Force D, makes the following recommendations —

Lieutenant Colonel H O B. Brown Mason, R A M C, Lieutenant M Burnett, P A M C

Captain R Knowles, I M S, Sub Assistant Surgeon K Kuperkar, 110th M L I

Lieutenant N K Bal, I M S, 117th Mahrattas, Captain J J Harper Nelson, I M S, 119th Infantry

Captain R E Wright, I M S, displayed exceptional ability in handling his sub division of No 3 Field Ambulance throughout the day. He displayed particular initiative in proceeding to the firing line of the 18th Brigade under a heavy fire and, by ascertaining personally the position of the groups of wounded, was able to conduct a detachment of Mampur Transport Carts direct to the place where they were most required when speedy evacuation was most essential. He afterwards superintended the main advanced dressing station at South Mound in a most efficient manner.

Captain F O Fraser, I M S, displayed great coolness in bringing his sub division forward under heavy shell and rifle fire and was in close touch with the 16th Brigade throughout the day. I was particularly struck by the steadfast behaviour of the A B C men of this sub division and attribute it in great part to his excellent example and leading.

Lieutenant Colonel J Hennessey, Major F G Foster, Capt F C Lambert, R A M C, Major Lewis Cook, F R C S, Captains B E Slinger Leathes and L A P Anderson, I M S, and the following Members of Indian Subordinate Medical Department —

4th Class Assistant Surgeon A E Phaure
No 972, 1st Class Sub Assistant Surgeon Sundar Singh
No. 402 3rd class Sub Assistant Surgeon Shaikh Mahomed Dada Sahib

Pack Store Sergeant

No 5887 Sergeant F Hayter, 2nd Battalion, Hampshire Regiment

Nursing Orderlies

No 9166 Lance Corporal Parkes, 1st Oxford and Bucks Light Infantry

No 8601 Private E Lock, 2nd Battalion, Dorset Regiment

Pack Store Havildars

No 911 Havildar Ram Lal Singh, 2nd Rajputs
No 2151 Havildar Mahomed, 103rd Mahratta Light Infantry

Ward Orderlies

No. 2399 Sepoy Nabi Bux, 119th Infantry

Hospital Store keepers

Sergeant J A Bloomfield, Great Indian Peninsula Railway Volunteers

Private Moos, Poona Volunteer Rifles
2nd Class Hospital Store keeper, B F Ghyara, Supply and Transport Corps

Army Bearer Corps

No 9339 Bearer Samedin
No 4485 Bearer Subhan Singh
No 7480 Bearer Gaiiba
No 9314 Bearer Dhonde
No 1196 Bearer Ram Charan
No. 7485 Bearer Rafawa

Army Hospital Corps

No 6147, 2nd grade Ward Servant Abba Pira
No 5308, 1st grade Ward Sweeper Mohan Singh
No 5207, 1st grade Water carrier Bhondoo
No 263, Bhisti Rajah Pussal, Supply and Transport Corps
No 6352, 3rd grade Ward Servant Gangaram Gainu
No 6428, 2nd grade Ward Sweeper Mohan Nathu
No 6032, 1st grade Water carrier Gainoo Baloo
No 266 Bhisti Shaikh Amur

CIVIL ASSISTANT SURGEON I CHARAN, L R C P & S (Edin), is appointed to hold visiting charge of the Civil Surgeoncy, Minbu District, in place of First Class Military Assistant Surgeon G W. Vincent

CIVIL ASSISTANT SURGEON J. J. G. DaCosta, L.M. & S. (Mad), is appointed to officiate as Civil Surgeon, Myitkyin, in place of First Class Military Assistant Surgeon E. A. Picachy

On return from leave, Mr. W D Jones, L.M. & S. (Mad), L R C P & S. (Edin), is posted to the civil medical charge of the Minbu District in place of Civil Assistant Surgeon Isa Charan, who is holding visiting charge.

MAJOR T C McCOMBIE YOUNG, M.B., D.P.H., I.M.S., is appointed to be Sanitary Commissioner, Assam, with effect from the 1st July, 1915

This is a step in the right direction. Major Young has been Deputy Sanitary Commissioner, and it had long become necessary to relieve the Inspector General of Civil Hospitals of the additional sanitary work.

SURGEON CAPTAIN JOHN MCINTYRE FALKINER, Assam Valley Light Horse, is placed as a supernumerary on the establishment of his rank. Dated the 1st April, 1915

WILLOUGHBY GRANT to be Surgeon Lieutenant, to fill an existing vacancy. Dated the 20th May 1915

THE following is gazetted, dated Simla, August 14th —

MAJOR R P WILSON, F.R.C.S., I.M.S., Superintendent, Campbell Medical School and Hospital, Seridah, Calcutta, is appointed to officiate as Professor of Clinical and Operative Surgery, Medical College, Calcutta, and Surgeon to the College Hospital, in addition to his own duties, during the absence of Lieutenant Colonel C R Stevens, M.D., F.R.C.S., I.M.S., on military duty, with effect from the 11th March, 1915, until further orders.

THE services of Major Satis Bose, M.B., I.M.S., are replaced temporarily at the disposal of His Excellency the Commander-in-Chief in India.

CAPTAIN T H BONNAR, I.S.M.D., Officiating Civil Surgeon, Goalpara, is appointed to officiate as Civil Surgeon, North East Frontier.

CAPTAIN G T MILCHEM, I.S.M.D. (retired), is appointed to officiate as Civil Surgeon, Dehra Dun, as a temporary measure.

LIEUTENANT COLONEL Z A AHMAD, I.M.S. (retired), to be Civil Surgeon of Gonda, as a temporary measure, with effect from the 26th July, 1915.

LIEUTENANT COLONEL Z A AHMAD, I.M.S. (retired), Civil Surgeon of Gonda, to hold visiting medical charge of Bahraich, vice Major G A Jolly, I.M.S., reverted to military duty.

DR S M. WARIS, M.D., is appointed as Civil Surgeon of Muttra, as a temporary measure, with effect from the date he assumed charge.

IN exercise of the powers conferred by sub section (3) of section 3 of the Bombay Medical Act, 1912 (Bom VI of 1912), the Governor in Council is pleased to nominate Lieutenant Colonel V B Bennett, M.B., B.S. (London), F.R.C.S., I.M.S. as a member of the Bombay Medical Council, vice Lieutenant Colonel J B Smith, M.B., M.Ch. (R.U.I.), D.P.H. (Cantab.), I.M.S., resigned.

WITH reference to Government Notification, Revenue Department, No 1033, dated the 27th January, 1915 His Excellency the Governor of Bombay in Council is pleased to appoint Military Assistant Surgeon W. E. Kirkpatrick to hold visiting charge of the Civil Surgeoncy at Mahabaleshwar from the 19th June, 1915, in addition to his own duties, pending further orders.

HIS Excellency the Governor of Bombay in Council is pleased to appoint Lieutenant Colonel W E Jennings, M.D., C.M. (Edin) D.P.H. (Ire), I.M.S., to act as Presidency Surgeon, First District, with attached duties, in addition to his own duties, vice Major L Husch, F.R.C.S.E., I.M.S., pending further orders.

THE services of Lieutenant Colonel L G Fischer, I.M.S., Civil Surgeon, Dehra Dun, are replaced at the disposal of the Government of India, Army Department, as a temporary measure, with effect from the date he relinquished charge of his duties.

LIEUTENANT COLONEL H B MELVILLE, I M S, Civil Surgeon, has been granted by His Majesty's Secretary of State for India an extension of leave for six months on medical certificate

Lieutenant Colonel Melville went home on medical certificate in April, 1914

LIEUTENANT COLONEL A COLEMAN, I M S, Civil Surgeon, Umballa, was granted one month's privilege leave from 9th August

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of India, Army Department, with effect from the date they hand over charge —

First Class Military Assistant Surgeon J Doyle, Civil Surgeon, Balaghat

Second Class Military Assistant Surgeon F K Holmes, sub *pro tem* Civil Surgeon, Amroli

Second grade Civil Assistant Surgeon Ganpat Ram Rao Goveidhan, L M & S in charge of the Main Hospital Chhindwara, is appointed to officiate temporarily as Civil Surgeon, Balaghat

MR A E TANNER, L R C P & S, L F P & S D P H is appointed temporarily as Civil Surgeon in these Provinces and is posted to the Amroli District

WITH the previous sanction of the Government of India, the Governor in Council is pleased to appoint Dr William Nunan, M D, D Ch, to act as Coroner of Bombay during the absence on leave of Mr E T Lambert, or pending further orders

THE undermentioned are appointed to be temporary Lieutenants, I M S, subject to His Majesty's approval, with effect from the dates specified —

Malik Anup Singh Ahluwalia, M B, 27th June, 1915

Friedrick Honarate Noronha, M B, 5th July, 1915

Babu Singh Thakur, 9th July, 1915

Sorab Cuiشهدji Contractor, M B, 14th July, 1915

Sunder Dass Sondhi, M B 20th July, 1915

Raghunath Anandeo Barve, 3rd August, 1915

SIR DAVID PRAIN, I M S (ret'd), has been elected an Honorary Fellow of the Royal Society of Medicine

Hospital has the following note —

"Captain Charles Harrison Barber, I M S, during the course of his work at No 9, Indian General Hospital, has devised a new form of splinting for which he claims advantages in the treatment of gunshot wounds of the leg. Captain Barber is an Oxford and King's College Hospital man who qualified L R C P, M R C S in 1902, previously winning a scholarship in medicine and surgery at his medical school. Before entering the Indian Medical Service, wherein he holds an appointment as specialist in operative surgery, he was House Surgeon at King's College Hospital and House Physician to the Victoria Hospital for Children at Chelsea"

IN the I M S examination held in July last, the examinees were the following —

Hector Mackenzie, Esq, M A, M D, F R C P, in Medicine and Therapeutics

Sir W Watson Cheyne, Bart, C B, F R C S (Eng), in Surgery and Diseases of the Eye

Professor R W Reid, M D F R C S, in Applied Anatomy and Physiology

Professor J Lorrain Smith, M A, M D, F R S (Edin), in Pathology and Bacteriology

Professor F W Kidd, B A, M D, etc, in Midwifery, Diseases of Women and Children

Professor Sir William Whitla, M A, M D, LL D, in Materia Medica, Pharmacology, and Toxicology

THE undermentioned to be temporary Lieutenants, I M S, subject to His Majesty's approval, with effect from the dates specified —

Holmazshaw Jamshedji Wadia, 17th July, 1915

Naranji Ranchhodji Naik, 23rd July, 1915

Khoibhoji Karsji Patel, 29th July, 1915

Anant Yashwant Dabholkar, M B 2nd August, 1915

Samuel Jay Kotak, 4th August, 1915

Alexander da Fonseca Dias, 6th August, 1915

Pascal John deSouza, 6th August, 1915

Shusil Kumar Roy, M B, 6th August, 1915

Gangadrum Venkataswamy Ram Mohan, M B, 6th August, 1915

John Anderson Iswariah, M B, 6th August, 1915

Venkatrao Marjunath Kaikini, M B, 10th August, 1915

THE following promotions are made, subject to His Majesty's approval, and to the officers passing the prescribed examination for promotion at the first opportunity after the termination of the war —

Lieutenants to be Captains, I M S

27th July, 1915

John Dykes Wilson, M B, Laurence Allfrey Pelham Anderson, William Calder Paton, M B, James Bennett Hance, M B, Stephen Gordon, Harold Kirkby Rowntree, M B, Graham Yalden Thomson, M B, Basil Franklin Eminson, M B, Anthony Kennedy, Sorab Dhunjabhoy Ratnagar, Colin McIver, Jordan Constantine John, M B

MR T K NAYAR, L M & S (Bom), is appointed as a Civil Assistant Surgeon in Burma, with effect from the 19th June, 1914

MAJOR F S C THOMPSON, I M S Superintendent, Presidency Jail, has been granted, by His Majesty's Secretary of State for India, an extension of furlough, on medical certificate for one month, *et c*, up till 12th November, 1915

LIEUTENANT COLONEL E A W HALL, I M S, Civil Surgeon, Howrah, is allowed privilege leave for one month, under article 260 of the Civil Service Regulations, with effect from the 10th August, 1915

DR W C HOSSACK, Health Officer, Port of Calcutta, is appointed to act as Civil Surgeon, Howrah, during the absence, on privilege leave, of Lieutenant Colonel E A W Hall, I M S

DR C BANKS, Protector of Emigrants and Superintendent of Emigration, Calcutta is appointed to act as Health Officer, Port of Calcutta, in addition to his own duties, during the absence on deputation of Dr Hossack

mc 1657 Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters, and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements, and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta

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BOOKS, REPORTS, &c, RECEIVED —

J B Murphy's Clinics, Vol 4, No 2 W B Saunder Co
Braasch's Pyrography W B Saunder Co
T W Eden's Manual of Midwifery J and A Churchill
Aids to Treatment, by various writers
Brattle's Post mortem Methods Cambridge University Press
H C Barclay, Anatomy and Physiology, Bailliere Tindall & Co
Plozman and Dearden's Fighting the Fly Peril Fisher Unwin, Price 1s
Sawlat Khan's Dispensers' Handbook, Price Re 14 British India Press, Bombay
Hongkong Medical Report 1914
Catechism Series Botany 11
Meraj Hospital Report

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Lt Col H Smith, I M S, Amritsar, Capt H Watts, I M S, France
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